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ABSTRACT

An outline is provided for study of the collection, storage, and retrieval of all kinds of print and nonprint information. Coverage includes descriptions of types of primary materials, print and nonprint information, bibliographic description and cataloging; indexes and abstracts; bibliographies; reference works; retrieval methods; reprography; organization of information; and training of documentalists. Appendixes include a list of International Organization for Standardization (ISO) technical committees; lists of ISO, American, and British standards publications; and an outline of the Universal Decimal Classification. (LS)

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ED115268

SYLLABUS FOR A DOCUMENTATION COURSE

by

W. van der Brugghen

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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FOREWORD

The Syllabus is based on the author's experience in teaching courses to students of French-speaking African countries and earlier versions were published in French in 1969 and 1972[1].

Students, lecturers and course organizers were convinced that individual lectures by specialists should be preceded by a general introductory course covering the entire field of documentation. The syllabus served on the one hand as a condensed introduction to the field and on the other hand as an outline for the programming of the approximately 8-months course. Numerous references make the syllabus an invaluable information source.

The syllabus is constructed so as to gradually lead from basic elements to complicated international systems, with particular reference to international activities, developments and standardization in the field. The order of the chapters has proved its value during several years of courses. Detailed courses on the various subjects should, whenever possible, be given in the same order.

Experience has shown that students without university education can master the contents of this syllabus during the introductory course, lasting some 2-3 weeks and including 40-50 hours of lectures.

The drawings were designed for easy reproduction of essential elements on a blackboard. Additionally, however, the various types of documents and processes should be physically demonstrated.

(1) - Cours d'introduction à la documentation. Aide-mémoire synoptique. The Hague, FID, 1972, 93 p. (FID 484)
- Introduction à la documentation. "Bulletin de l'Institut Ali Bach Hamba" (Tunis), Vol. 1, Déc. 1969 (no. spécial), 36 p.

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1. INTRODUCTION

1.1 Aims
- organize documentation to meet the needs of the user: a country, an organization or industrial firm, a person
- avoid duplication of effort
- provide the desired information when required and in the form and detail required - often only some figures are required

1.2 Types of documents
(references to chapters added in brackets)
all carriers of information may be called documents:
a) handwritten or typed manuscripts (2.1)
b) printed documents: books, journals, reports, lists of information sources
   - containing new, primary, information (2.2 - 2.7)
   - containing condensed primary, i.e. secondary information (4)
   - catalogues (3.5), bibliographies (5) and other reference works (6) identifying information sources
c) non-book materials, such as films and tapes (2.8)
d) iconographic objects, such as paintings and other objects of art, and archaeological findings, informing on the way of living, equipment used, etc. (not treated in this Syllabus)

1.3 Documentary processes
(references to chapters added in brackets)
a) acquisition
b) information processing
   - bibliographic description (3.1 - 3.4)
   - cataloguing (3.5)
c) information analysis, i.e. evaluating documents
d) information retrieval - IR (7)
e) selective dissemination of information - SDI (9.5 "user profiles")
f) copying and reproduction (8)

1.4 Standardization
efficient information exchange is based on standardized procedures, in the same way as in daily life, e.g. voltage of electrical equipment 110 or 220 V. - there often is more than one standard but their number is reduced to a practical minimum
- standardization of the contents of documents (see chapters 3 and 7.4)
- standardization of the form of documents (see below and chapters 7 and 8)

international documentation standards are prepared by the Technical Committees (TC) of the International Organization for Standardization (ISO), in particular
- ISO/TC 6 Paper, board and pulps
- ISO/TC 37 Terminology (principles and coordination)
- ISO/TC 42 Photography
- ISO/TC 46 Documentation
- ISO/TC 97 Computers and information processing
- ISO/TC 154 Documents and data elements in administration, commerce and industry

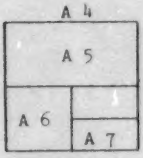
for further details, see chapter 9.11 d and Annex A

and by other international organizations such as IFLA (International Federation of Library Associations), UNISIST (World Science Information System), ICSU AB (International Council of Scientific Unions, Abstracting Board) in collaboration with ISO

see Annex B for a list of ISO recommendations and standards, and Annex C for American and British standards

see chapter 9.6 for the International Information Centre for Standards in Information and Documentation

standards for paper formats, basic for all documentation work, are taken from the German standard DIN 198 based on ISA 7-1935 (ISA is the predecessor of ISO) - each next format is half of the preceding format, thus avoiding paper wastage
there are two series of formats, A 0-10 and B 0-10:
- A 3 297 x 420 mm (for offset)
  A 4 210 x 297 mm (for periodicals)
  A 5 148 x 210 mm (for brochures)
  A 6 105 x 148 mm (for microfiches)
  A 7 74 x 105 mm (for catalogue cards)
  the "International Library Card" measures 75 x 125 mm



- B 5 176 x 250 mm (for books)
  B 6 125 x 176 mm (for brochures)

early 1975, the United Nations announced its intention to adopt the ISO standard for paper sizes for all documentation, correspondence and general use; reference was made to ISO/TC 6, Paper, recommendations and standards ISO/R 216-1961, ISO 478-1974, ISO/R 479-1966 and ISO 593-1974 concerning the A series

standardization of terminology is a more difficult problem - even the words "documentation" and "information" have not the same meaning in all countries, and additional confusion was created by the invention of the word "informatics" meaning information in English but also used for "computer science" (in French "informatique")

multilingual word lists have been published (see Literature, chapter 1) and a thesaurus is being prepared by FID's Terminology Committee (FID/DT); ISO/TC 46/SC 3 Terminology of Documentation is working on a "Vocabulary of information and documentation"

1.5 Research

information on research and new developments in documentation and library science can be obtained from
- R & D Projects in Documentation and Librarianship, 1971- , monthly. The Hague, FID
  a current-awareness service

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- LIST. Library and Information Services Today. An international registry of research and innovation, 1971- , annual. Detroit, Gale Research Company
- RADIALS Bulletin, 1974- , 3x per year. London, The Library Association
  UK projects only

1.6 International organizations
(for detailed descriptions see chapter 9.1)
international and national programmes in the information field - documentation, libraries and archives - are promoted by:
- Unesco, Paris
- International Federation for Documentation (FID), The Hague
- International Federation of Library Associations (IFLA), The Hague
- International Council on Archives (ICA), Paris

and by specialized organizations such as
- International Organization for Standardization (ISO), Geneva
- International Council for Reprography (ICR), Newbury, Berkshire (UK)

international programmes include
- UNISIST, World science information system - set up by Unesco and ICSU in 1972
- NATIS, National information systems - set up by Unesco, FID, IFLA and ICA in 1974

(for details see chapter 9.2)

2. PRIMARY PUBLICATION

2.1 Manuscripts

original, unpublished documentation:
- handwritten
- typed (in one or more copies)
- taped (recorded via dictaphone)

these original contributions can be circulated as such or printed

2.2 Monographs

books are non-periodical publications with more than 48 pages, brochures have 5-48 pages (Unesco 1964)
the time needed for the preparation and printing of books result in their contents seldom being up to date; however, books are valuable information sources for surveying a situation at a given date

see chapter 6 for Reference works

2.3 Serials

periodical publications: journals, newspapers, annuals, but also numbered series of monographs issued under one leading title

a) journals or periodicals

containing articles, news, book reviews, abstracts, advertisements

the regular publication of journal issues make this form of publication the best source for organized dissemination of recent information

journals in the field of information science include:
- International Forum on Information and Documentation, 1975- quarterly (publ. by VINITI, Moscow; available from FID, 7 Hofweg, The Hague)
- The Journal of Documentation, 1945- , quarterly (Aslib, 3 Belgrave Square, London)
- Aslib Proceedings, 1949- , monthly
- Journal of the American Society for Information Science, 1950- , 6x (ASIS, 1155 16th Street NW, Washington, D.C. 20036)

for developments in library science, see
- Unesco Bulletin for Libraries, 1947- , 6x (Unesco, Place de Fontenoy, Paris)
- IFLA Journal, 1974- , quarterly (Verlag Dokumentation, München/Pullach)

consult Library, Documentation and Archives Serials (chapter 6.2 c) for an extensive list of titles

b) newsletters, quarterly or monthly bulletins

containing news of organizations or activities in special fields
newsletters in the information field include:
- FID News Bulletin, 1951- , monthly (FID)
- Information 1. News and sources, 2. Reports, bibliographies, 1972- , monthly (Science Associates/International, 23 East 26th Street, New York)

- UNISIST Newsletter (Unesco)
- NATIS News (Unesco)
- Bibliography, Documentation, Terminology (Unesco)

c) newspapers
collections of items of particular interest: newspaper clippings

2.4 Reports and dissertations
research reports and theses usually contain extensive references to literature consulted
- a special kind of reports are the "state-of-the-art" reports
- reports are often produced in "series" (see above under 2.3)

2.5 Official publications
- records of laws, containing government decrees, etc.
- statistics, of the population, commerce, industrial production, etc.
- publications of international organizations

2.6 Technical publications
- standards, for quality, format, etc.
- patents, detailed descriptions of inventions (announced in Official gazettes)
- technical specifications, instruction manuals

2.7 Special forms of publication
- preprints, articles circulated before their publication in a journal or in congress proceedings
- reprints, extra copies of articles circulated after publication

2.8 Non-book materials
including audio-visual materials
- reproductions (of art work)
- films (documentary, instructive)
- records (music, speech)
- magnetic tapes (text recordings)

the nature of these documents usually requires special handling and storage

3. BIBLIOGRAPHIC DESCRIPTION

the description of a document and its contents serves to identify a piece of information by its address and nature, and thus facilitates its retrieval:
- bibliographic reference: author, title, publication details
- abstract: summary of the contents of the document
- descriptors: keywords or artificial codes representing the contents of a document

3.1 Presentation of a document

a well presented document (i.e. a primary publication) greatly facilitates the documentation work and in particular the bibliographic description

ISO/TC 46 has prepared the following standards:

ISO 1086 - 1975 Title-leaves of a book

the bibliographic description of a book must be based on the information on the title page

it should contain
- name of the author, compiler or editor
- title of the book, and title in the original language in case of a translation
- number of the edition
- place of publication
- name of the publisher
- date of publication

and
- number of the volume if the book is published in several volumes
- title and series number if the book forms part of a series (e.g. Manuals on library science 3)

NOTE: a revision of ISO/R 1086 of 1969

ISO/R 8 - 1955 Layout of periodicals
- title: to be short for easy quotation
- issues: volume and issue number, issue date, publisher, frequency, price of subscription
- volume: preferably to correspond to calendar years

ISO/R 30 - 1956 Bibliographical strip

at the bottom of the first page of a journal issue
- abridged title
- volume number
- issue number (to stand out clearly)
- first and last page
- place of publication
- date of publication

a revision of ISO/R 30 with the title "Identification elements for a serial publication" is being prepared

UNISIST/ICSU AB/ISDS issued in 1975 "Guidelines for the coded bibliographic strip for serial publications": ISSN or CODEN for the title (cf. chapter 3.2), volume and issue data, pagination, date of publication

ISO/R 18 - 1956 Short contents list of periodicals or other documents
list of contributions to appear on the cover or first page
- author's name
- title of the contribution
- first (and preferably last) page of the contribution

ISO/R 215 - 1961 Presentation of contributions to periodicals
- title of the article
- name of the author and his profession
- descriptor (keywords or classification number)
- summary of the article (preferably in a well-known language)
- text
- references to literature cited
- tables and illustrations (near to the relevant part of the text or, if many, all at the end of the article)
- date of receipt by the editor

ISO 2145 - 1972 Numbering of divisions and subdivisions in written documents
sections, chapters and subchapters (paragraphs) preferably numbered with Arabic numerals:

1 CLIMATE
1.1 Weather
1.1.1 *Rain*
1.1.2 *Sunshine*
1.2 Temperature
etc.

it is advisable to use also different characters as suggested above

ISO 999 - 1975 Index of a publication
Index to authors and subjects, and if required to place names, abbreviations used, advertizers, etc., with indication of their place in the publication
NOTE: revised edition of ISO/R 999 - 1969

3.2 Bibliographic reference
(the references on magnetic tapes are dealt with in chapter 7.4)

a) for citations
ISO/R 77 - 1958 *Bibliographic references. Essential elements*
NOTE: will be withdrawn, s.a. ISO 690
ISO 690 - 1975 *Bibliographical references. Essential and supplementary elements*
NOTE: revised edition of ISO/R 690 - 1968
1) articles in journals:
- name, forename of author
- title of article
- title of periodical

- volume number
- issue number
- date (month, year)
- pages

e.g. Fugmann, Robert - The glamour and the misery of the thesaurus approach - Int. Classif., 1(2), Nov. 1974: 76-86

2) books:
- name, forename of author
- title of the book
- edition number
- place of publication
- publisher's name
- year of publication
- number of volume (if published in several volumes)
- pages (often Roman for introductory part, followed by Arabic, e.g. XIV + 186 p.)
- illustrations
- price

e.g. Carter, Ciel - Guide to reference sources in the computer sciences - New York: Macmillan Information; London: Collier Macmillan Publ., 1974, XI, 237 p.

3) contributions in books:
- name, forename of author
- title of his contribution

followed by "In" and the description given above under 2 starting with the title of the book, e.g.

Mukwato, L.E. - Training of librarians in East Africa - In: Special libraries - Worldwide, a collection of papers - Pullach/München, Verlag Dokumentation, 1974, pp. 345-351

- patents

ISO/DIS 3388 (1974) - *Patents. Bibliographic references. Essential and complementary elements*

ISO 4 - 1972 *International code for the abbreviation of titles of periodicals*
(replaces ISO/R 4 - 1954)
general rules; for details see ISO 833

ISO 833 - 1974 *International list of periodical title word abbreviations*
(replaces ISO/R 833 - 1966)
a detailed list of abbreviated title words (e.g. Bull for Bulletin, Proc for Proceedings, Z for Zeitschrift, Zh for Zhurnal)
transliteration of cyrillic characters based on ISO/R 9, see below sub b
the standard is a merger of ANSI/ICSU AB's "International list of periodical title word abbreviations" and ISO/R 833

NOTE: a 5-letter code (with a 6th character for computer validation) for title abbreviations was developed by the American Society for Testing Materials: CODEN for Periodical Titles, 1970, listing titles of journals with their CODEN

ISO/R 832 - 1968 *Abbreviations of typical words in bibliographical references*
concerns words like volume (vol.), page (p.), in 16 languages

b) transliteration
words not written in Roman characters are transliterated in order to obtain a uniform spelling for cataloguing and retrieval

ISO/R 9 - 1968 *International system for the transliteration of Slavic cyrillic characters*
(replaces ISO/R 9 - 1955)
for Russian, Ukrainian, Byelorussian, Serbian, Macedonian and Bulgarian alphabets

NOTE: ISO/R 9 allowed for variants without any diacritical marks - these variants were also incorporated in the transliteration table of ISO 833 and in the UNISIST manual for machine-readable bibliographic descriptions (cf. chapter 7.4)
in the draft (DIS) for revising ISO/R 9 ISO/TC 46, however, promotes the use of transliteration *without* the option of these variants

Russian		UNISIST	DIS	Russian		UNISIST	DIS
а	А	a	a	р	Р	r	r
б	Б	b	b	с	С	s	s
в	В	v	v	т	Т	t	t
г	Г	g	g	у	У	u	u
д	Д	d	d	ф	Ф	f	f
е (ё)	Е (Ё)	e	e (ë)	х	Х	kh	h
ж	Ж	zh	ž	ц	Ц	ts	c
з	З	z	z	ч	Ч	ch	č
и	И	i	i	ш	Ш	sh	š
й	Й	j	j	щ	Щ	shch	šč
к	К	k	k	ъ	Ъ	"	"
л	Л	l	l	ы	Ы	y	y
м	М	m	m	ь	Ь	'	'
н	Н	n	n	э	Э	eh	ė
о	О	o	o	ю	Ю	yu	ju
п	П	p	p	я	Я	ya	ja

transliteration standards for other languages prepared by ISO/TC 46 are:
ISO/R 233 - 1961 for Arabic (being revised)
ISO/R 259 - 1962 for Hebrew (being revised)
ISO/R 843 - 1968 for Greek (being revised)
ISO/DIS 3602 for Japanese

c) for cataloguing
there are as yet no ISO standards, but the following IFLA standards have been submitted to ISO for publication of outlines as ISO standards
- ISBD(M) "International standard bibliographic description for monographic publications", 1974
- ISBD(S) "International standard bibliographic description for serials", 1974
NOTE: the ISBD(S) will be revised in order to avoid discrepancies with ISDS, the International Serials Data System (see below/and chapter 9.2) operating under the auspices of UNISIST

whereas other ISBDs are in preparation for non-book materials, maps, rare books, etc.

in cataloguing practice, the use of the "Anglo-American Cataloging Rules" (1967) is widespread; a revised edition is in preparation, to appear in 1977 - chapter 6, already revised and published (also in Arabic by ALECSO), is based on ISBD(M)

recently standards were prepared for identification of books and serials by a numeric code:
ISO 2108 - 1972 International standard book numbering (ISBN)
the number consists of a ten-digit code
- group identifier (language, geographical)
- publisher identifier
- title identifier
- check digit (for making the code dividable by 11 for computer purposes)

e.g. ISBN 92-66-00523-1 = international organization - FID - book title - check digit, for "Library, Documentation and Archives Serials", issued by FID in 1975

ISO 3297 - 1975 International standard serial numbering (ISSN)
the number consists of an eight-digit code, the eighth digit being the check digit making the code dividable by 11, e.g.
ISSN 0014-5874 for FID News Bulletin
ISSN 0303-4542 for FID Annual Report

NOTE: standard serial numbers have been assigned to serials in "Ulrich's International Periodicals Directory" (1971/72, 14th ed.) and "Irregular Serials and Annuals. An international directory" (1972/73, 2nd ed.)
these numbers, however, have to be checked with the International Centre for the Registration of Serials, Paris, who now assigns the ISSNs

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the International Centre will publish in 1975 a full list of serials registered with ISSNs, containing: title, place of publication, publisher's name, first year of publication under this title, abbreviated title

3.3 Abstracts

ISO/R 214 - 1961 *Abstracts and synopses*
(presently being revised: ISO/DIS 214 "Documentation Abstracts", guidelines for the preparation and presentation of abstracts of documents)
- abstract: summary made by the editor of a journal
- synopsis: summary made by author (= author's abstract)

the summary should preferably not exceed 200-250 words and be presented in a well-known language; the reader will decide on the basis of the summary whether he wishes to read (and order) the full article

summaries on cards should preferably not exceed 50-60 words

for making a summary one has to be an expert in the field in order to extract the essential elements, and have a fair knowledge of the terminology used

3.4 Descriptors

for subject control by

a) natural language
   - keywords, taken from the title or contents
   - descriptors, taken from a pre-established list (thesaurus)

b) artificial language
   - notations from a classification system
   - computer program languages (see chapter 7.4)

3.41 Thesauri

controlled lists of terms (descriptors)

- the selection of terms for inclusion in a thesaurus must be based on a thorough study of vocabularies, encyclopedias, classification systems, etc. in the relevant field; moreover, a thesaurus should be kept up to date

ISO 2788 - 1974 *Guidelines for the establishment and development of monolingual thesauri*
(first published in 1971 as "UNISIST guidelines for the establishment and development of monolingual scientific and technical thesauri for information retrieval")

- a thesaurus contains
  a) recommended terms
  b) not recommended synonyms
  e.g.

OPTICAL PROPERTIES (incl. properties of visible, infrared and ultraviolet electromagnetic waves and their effects)	- descriptor (recommended term)
UF Optical transmittance	- annotation - synonym, not to be used (UF = used for)
BT Physical properties	- generic term (BT = broader term)
NT ...	- specific term (NT = narrower term)
RT Interference	- related term (RT)
.....	
.....	
OPTICAL TRANSMITTANCE	- non-recommended term with refer-
USE Optical properties Transmittance	ences (USE) to recommended terms

a disadvantage of these natural language lists of terms is that they can be used only by those familiar with the terminology; few thesauri (although gradually more) are available in more than one language

thesauri usually are made for a specific field, e.g. engineering, and combining of thesauri for related fields therefore is almost impossible

examples of thesauri are:
- Thesaurus of engineering and scientific terms - New York, Engineers Joint Council, 1967, VI + 690 p.
  known as EJC-TEST; 17,810 descriptors, 5,524 references; selection based on 140 terminological sources; new edition being prepared
- Medical subject headings. Alphabetic list 1975 - Bethesda, Md., U.S. National Library of Medicine, 1974, 339 p.
  MeSH and non-MeSH terms and indexing instructions
- INIS Thesaurus - Vienna, International Atomic Energy Agency, 1975, 632 p. (IAEA-INIS-13, Rev. 9, 1975)
  first issued in 1970
- Macrothesaurus. A basic list of economic and social development terms, 1st English edition - Paris, Organization for Economic Cooperation and Development, 1972, 224 p.
  19 major subject fields; language editions in Arabic, French, German, Portuguese and Spanish
  Macrothesaurus Newsletter
- EUDISED Multilingual thesaurus for information processing in the field of education - Paris/The Hague, Mouton, 1973, 391 p.
  separate language editions; prepared on behalf of the Council of Europe

for thesauri and other terminology lists in the field of documentation, see chapter 1.4 and Literature to chapter 1

the original grouping of terms in alphabetical order has gradually developed to stuctured lists of terms in modern thesauri, bringing related concepts together; the difference with classification systems thus gradually disappears

in a thesaurofacet classified schedules are complemented by a thesaurus serving as alphabetical subject index
- Thesaurofacet. A thesaurus & faceted classification for engineering & related subjects - The English Electric Company, 1969, 491 p.

3.42 Classification systems

structured lists of terms with alphabetical or numerical notation
- alphabetical: A, Aa, ..., B, Ba, ...
- numerical: 1, 11, 12, ..., 2, 21, ...
  e.g. Dewey Decimal Classification (DC)
  Universal Decimal Classification (UDC)
- alpha-numerical: A, A1, A2, B, ..., or 1, 1A, 1B, 2, ...
  e.g. Library of Congress Classification System (LC)
  Colon Classification (CC)
  International Classification of Patents for Invention (IPC)

a special kind of lists of terms are the faceted schemes; these group terms by aspects (facets) of particular importance in a given subject field and are usually limited to a certain field; "facets", however, are also found in general classification systems such as the UDC, and in particular in the CC, allowing for a different way of grouping terms or for subdividing terms according to general aspects

Universal Decimal Classification (UDC)

this major general classification is an example of a numerical classification scheme

the DC, developed by Melvil Dewey (USA) and published in 1876 for the classification of books (i.e. *titles* of works, not their contents) and still used in many public libraries (18th ed. in 1971, 19th ed. scheduled for 1978), was adopted by Otlet and La Fontaine (Brussels) 1895 as a basis for developing a detailed classification system (UDC) for identifying the *contents* of documents; the UDC presently contains some 200,000 direct subdivisions

- structure of the UDC

the total of human knowledge is considered as an entity which is divided into 10 main classes (,0 to ,9 - the comma is omitted in the UDC), each class again being subdivided, e.g.

```
6     APPLIED SCIENCES
61    Medical sciences
62    Engineering sciences
63    Agriculture
631     Agronomy
631.1     Farm management
  .2      Farm buildings
  .21       Farmsteads
  .22       Livestock buildings
```

see Annex D for an outline of the UDC

- notational symbols
  combining subjects in succeeding or dispersed notations:
  611/612 Anatomy and Physiology
  622+669 Mining and Metallurgy
  relating subjects:
  297:72 Islamic influences on Architecture
  auxiliary tables for place, form, time, language, etc.
  72(48) Scandinavian Architecture

  other country codes are:
  language and place indicators elaborated by ISO/TC 37:
  ISO/R 639 - 1967 *Symbols for languages, countries and authorities*
  - 37 languages, represented by letters or UDC numbers
  - 50 countries, represented by the country initials for motor vehicles (e.g. GB for Great Britain) or UDC numbers

  another 3-figure country code was developed by the U.N. Department of Economic and Social Affairs: "United Nations Standard Country Code", 1970, 46 p., and again another by the International Atomic Energy Agency, Vienna: "INIS Reference Series, No. 5 Terminology and codes for countries and international organizations"

  the most recent ISO/TC 46 recommendation is:
  ISO 3166 - 1974 *Code for the representation of names of countries*
  contains two codes: the Alpha-2 with two letters, to be used for general purposes, and the Alpha-3 with three letters for special purposes
  (the first two letters in both codes are not always the same)
- updating and publication
  the UDC is currently updated by the Central Classification Committee of FID (FID/CCC) and its revision committees
  proposals are published in P notes and, upon approval, in the annual "Extensions and Corrections to the UDC"

  full, medium, abridged and special subject editions of the UDC are published in more than 20 languages
  studies are being made to thesaurify the alphabetical indexes to the UDC editions

  the UDC is used in some 60 operational or experimental computerized information systems in 15 countries, its code being ideally suited for direct input into computer programs

3.43 Compatibility and concordances
the uncoordinated development of general and specialized indexing languages led to serious problems of compatibility through different codes for the same subjects in different systems
- in some cases concordances have been made, listing side by side codes of two systems

- presently UNISIST seeks a solution through a Broad System of Ordering, elaborated under contract by FID; the BSO is meant to become a 'roof' code with some 2000 subject-field terms arranged under 70-80 main field headings; it should serve as a switch code between detailed classification systems and thesauri, and for identifying major areas of search and information sources; ideally, the BSO should be 'completed' with, under each subject-field term, references to specialized systems of ordering, such as the UDC and specialized thesauri

3.5 Catalogues

card registers of literature, containing the bibliographic references, sometimes an abstract, and the relevant descriptors - thus representing the full bibliographic description of a document
the length of an abstract on a card should normally not exceed 50-60 words

catalogues are arranged:

- alphabetically
  a) by names of authors or anonymes
  b) by subject - presents difficulties unless a standardized word list is used (cf. chapter 3.4)
  c) dictionary - author, title, subject and form catalogue consolidated in one alphabet
- systematically
  by subject according to a classification system, e.g. UDC - keeps together related subjects, spread over the whole catalogue when in alphabetical order

for each document several cards have to be prepared (for duplication or reproduction, see chapter 8) to permit their filing by author(s), subject(s), etc.
systematic card files need not be re-arranged to follow revisions in a classification system - a new file may be set up for recent cards; in most cases the need for searching in the old file will soon diminish

many countries have established their own cataloguing rules; however, the use of the "Anglo-American Cataloging Rules" is widespread (cf. 3.2 c)

a certain standardization in the international use of rules was adopted at the International Conference on Cataloguing Principles, Paris, 1961 (organized by IFLA)

recent development are the establishment of ISBDs (see chapter 3.2 c)

4. SECONDARY PUBLICATION

there are
- indexing services
- abstracting services

for Bibliographies and Reference works, see chapters 5 and 6

they cover the primary literature (mainly journals and reports) more or less comprehensively in usually limited fields, e.g. medicine, economy, agriculture, but from almost all languages

these services permit a current survey on new literature and, in the case of abstracting services, may often replace primary journals
a documentation centre should always subscribe to the more important secondary publications in the relevant field and limit subscriptions to primary journals to those more or less read from cover to cover
indexing journals usually appear earlier than abstracting journals because no time is needed for preparing abstracts

4.1 Indexing services
bibliographical descriptions of literature without abstracts; sometimes with annotations

in the information science field:
- Library Literature, New York, H.W. Wilson Company, 1933-

special forms of indexing services are:
a) permuted-title indexes, i.e. KWIC indexes with alphabetically Keyword In Context and references to the publication, e.g.

title of article	ref. to publ.
..... coordinated *documentation* systems	BDG 7002
..... output of *documentation* systems	JAD 6912
.....	.....
.....	.....
..... *systems* design	BBF 6904
output of documentation *systems*	JAD 6912

b) citation indexes: listing the authors cited by another author in the list of references given at the end of his article - this permits identification of most-cited documents, e.g.

Duncan, P.N.	Am.J.Biol.	65 14 130
Odiot, G.	Bull.Econ.	69 12 34
Pearson, O.R.	J.Agron.	68 42 206

the article by Duncan has been cited by the two other authors in journals of which the title, year, volume, and first page of article are given

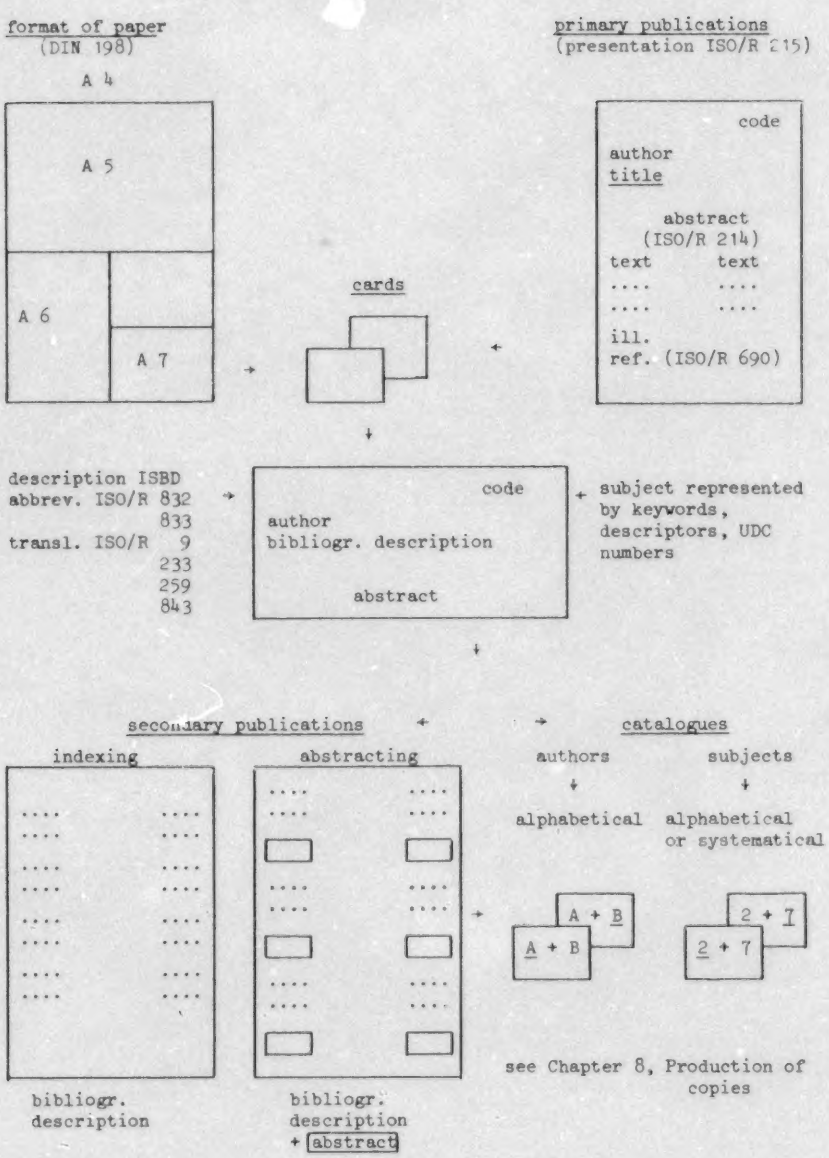
c) current contents, photographically reproducing or recomposing the table of contents of journals and thus giving: authors, titles of their articles and pages, as well as volume and issue number of the relevant journal, e.g.
- CALL (Current Awareness - Library Literature) - Goldstein Associates, Framingham, Mass., 1972-

4.2 Abstracting services
bibliographic descriptions of literature with abstracts

in the information science field:
- Library and information science abstracts (LISA) - The Library Association, London (1950- ; from 1950-1968 "Library science abstracts")
- Information science abstracts - Documentation Abstracts Inc., Philadelphia, Pa. (1966- ; from 1966-1968 "Documentation Abstracts")
- Abstract journal - Referativnyi Zhurnal. Informatics - VINITI, Moscow (1965- ; from 1965-1969 "Scientific and technical information")

special forms are:
a) card services: bibliographic description, code and abstract on detachable cards or on loose cards
b) express information: digests of primary information, usually in a limited field and meant for practitioners

RESUME I


format of paper
(DIN 198)
A 4
A 5
A 6
A 7
cards
primary publications
(presentation ISO/R 215)
code
author
title
abstract
(ISO/R 214)
text
text
ill.
ref. (ISO/R 690)
description ISBD
abbrev. ISO/R 832
833
transl. ISO/R 9
233
259
843
code
author
bibliogr. description
abstract
subject represented by keywords, descriptors, UDC numbers
secondary publications
indexing
abstracting
catalogues
authors
subjects
alphabetical
alphabetical or systematical
A + B
2 + 7
see Chapter 8, Production of copies
bibliogr. description
bibliogr. description + abstract

22

5. BIBLIOGRAPHIES

published registers of publications
- national bibliographies
- union catalogues

5.1 National bibliographies
lists of publications produced in a given country or in a given language

USA
- Cumulative Book Index. A world list of books in the English language
- National Union Catalogue
  since the Library of Congress is in the possession of the copyright privilege, the NUC also serves as a national bibliography

UK
- The British National Bibliography

France
- Bibliographie de la France. Biblio
  merged in 1972

Germany
- Deutsche Bibliographie
  also includes books from other countries published in the German language

GDR
- Deutsche Nationalbibliographie und Bibliographie des im Ausland erschienenen deutschsprachigen Schrifttums

in a number of countries exists an obligation for national deposit (legal deposit) of copies of publications produced in the country - this facilitates publication of a comprehensive national bibliography

see chapter 9.2 for Universal Bibliographic Control (UBC) through national bibliographies

5.2 Union catalogues of serials
indicating the collections held by libraries in the country, e.g.

periodical	*library*	*years held*
- Archives records	NA	1920-
	ULC	1925-38, 1942-

USA
- Union list of serials (published before 1950), 5 vols., 3rd ed., 1965; continued by "New serial titles", 1950-

UK
- British union-catalogue of periodicals, 4 vols., 1955-1958; continued quarterly

Latin America
- CAPPAL (Catálogo Coletivo de Publicações Periodicas da América Latina), 2 vols., 1962

6. REFERENCE WORKS

- bibliographies of bibliographies
- reference guides (directories, lists of periodicals, and other guides to information centres and sources)
- lists of publishers
- commercial catalogues
- vocabularies
- maps
- annual reviews

6.1 Bibliographies of bibliographies
lists of bibliographies

a) general
- Besterman, Th. - A world bibliography of bibliographies and of bibliographical catalogues, calendars, abstracts, digests, indexes and the like, 4th ed., 5 vols., 1965-1966
- Collison, R.L. - Bibliographies, subject and national. A guide to their contents, arrangement and use, 3rd ed., 1968
- Bibliographic index (a subject list of bibliographies in both English and foreign languages), 1937-

b) national
- Pomassl, G. - Comparative survey of existing national bibliographies, 1975

6.2 Reference guides

a) general
- Walford, A.J. - Guide to reference material:
  Vol. 1 Science & technology, 3rd ed., 1973
  Vol. 2 Philosophy & Psychology, Religion, Social sciences, Geography, Biography & History, 3rd ed., 1975
  Vol. 3 Generalities, Languages, Literature, Arts, 3rd ed., 1977
- Winchell, C.M. - Guide to reference books, 8th ed., 1967, plus supplements
  has a section union catalogues

geographical
- Bibliographical guide to reference works in the Arab world/ Guide bibliographique des ouvrages de référence dans le monde arabe - Cairo, UAR National Commission for Unesco, 1965

b) specialized
- Sources, organization, utilization of international documentation, 1974 (FID 506)
- Guides to information sources, issued by UNIDO, 1972-
  each volume devoted to a special subject of importance to industry
- Freides, Th. - Literature and bibliography of the social sciences, 1973

c) lists of periodicals

- World list of scientific periodicals published in the years 1910-1960, 4th ed., 1963/64, kept up to date by the British Union Catalogue of Periodicals
- Ulrich's international periodicals directory, 15th ed., 1973/74
- Irregular serials and annuals. An international directory, 3rd ed., 1974/75
  companion publication to Ulrich's directory, both kept up to date by "Bowker Serials Bibliography Supplement"
- Survey of the world agricultural documentation services, 1973 (FAO, prepared by AGRIS panel)
- Technical journals for industry (FID 415)
  30 national volumes, incl. Australia, Canada, France, Germany, United Kingdom (but not for USA)
- Library, documentation and archives serials, 4th ed., 1975 (FID 532)
- Directory of current periodicals published in the Arab world/ Répertoire des périodiques en cours publiés dans le monde arabe - Cairo, UAR National Commission for Unesco, 1965
- Abstracting services:
  Vol. I Science and technology, 2nd ed., 1969 (FID 455)
  Vol. II Social sciences and humanities, 2nd ed., 1969 (FID 456)
- International directory of abstracting and indexing services - The Hague/Washington, D.C., FID/NFAIS, to appear in 1976

d) directories of organizations

international organizations

- Yearbook of international organizations, 15th ed., 1974 (2 vols)

national organizations

- The world of learning, 25th ed., 1975 (2 vols.)
- The Europa Yearbook, 1975 edition:
  Vol. 1 International organizations, Europe
  Vol. 2 Africa, The Americas, Asia, Australasia

libraries and documentation centres

ISO 2146 - 1972 *Directories of libraries, information and documentation centres*
a "directory" is a reference work intended to give information as to name, address, size of collection, subject covered, services rendered, etc.

- International library directory, 3rd ed., 1968
- Internationales Bibliothekshandbuch/World guide to libraries, 4th ed., 1974:
  Vol. 1 Europe, America
  Vol. 2 Africa, Asia, Oceania and index
- World guide to science information and documentation services/ Guide mondial des centres de documentation et d'information scientifiques - Paris, Unesco, 1965
- Directory of archives, libraries and schools of librarianship in Africa/Répertoire des archives, bibliothèques et écoles de bibliothéconomie en Afrique - Paris, Unesco, 1965

- Aslib directory - London, Aslib:
  Vol. 1 Information sources in science, technology and commerce, 1968, 3rd ed.
  Vol. 2 Information sources in medicine, the social sciences and the humanities, 1970, 3rd ed.
- Guide to national bibliographical information centres/Guide des centres nationaux d'information bibliographique - Paris, Unesco, 1970, 3rd ed., 195 pp.
  186 centres in 77 countries, mainly in the field of social sciences
- National referral services for industry. Worldwide directory, 4th ed., 1974 (FID 522)

library associations
- Handbook of national and international library associations, 1st ed., 1976 (preliminary ed. 1973)

publishers
- Publishers international yearbook. World directory of book publishers, 6th ed., 1973
- Internationales Verlagsadressbuch/Publishers' international directory, 6th ed., 1974

also useful are the various annual national 'books in print', e.g. "British Books in Print" and "Books in Print" (USA) which also provide lists of publishers and their addresses

e) commercial catalogues
- industrial companies (descriptions of their products)
  a) Kompass directories (national directories, indexed according to products and alphabetical list of firms)
  b) Kelly's manufacturers' and merchants' directory (UK)
  c) Thomas' register of American manufacturers
- publishers (announcements of new publications)
- trade fairs and book fairs

6.3 Terminology lists
- lists of words
- the same with definitions
- the same with examples of usage

the most simple type are glossaries, vocabularies, dictionaries of particular interest are the multilingual lists in specialized fields

the most elaborate lists are the encyclopedias, e.g. the Britannica and Larousse

ISO/TC 37 Terminology (principles and coordination) recommendations for vocabulary work are:

ISO/R 704 - 1968 *Naming principles*
concepts and terms

ISO/R 860 - 1968 *International unification of concepts and terms*
supplements ISO/R 704

ISO/R 919 - 1968 *Guide for the preparation of classified vocabularies*
for systematic arrangements, e.g. by UDC

ISO/R 1149 - 1969 *Layout of multilingual classified vocabularies*
multilingual counterpart of ISO/R 919

ISO/R 1087 - 1969 *Vocabulary of terminology*
vocabulary for terminology work

ISO 1951 - 1973 *Lexicographical symbols particularly for use in classified defining vocabularies*

for terminology lists in documentation, see chapter 4.1 and Literature to chapter 1

6.4 Maps
often containing special charts for population, culture, religion, languages, production and transport data

6.5 Annual reviews
- Directory of review serials in science and technology 1970-73, 1974 (incl. 500 titles)

in the field of librarianship, documentation and information science
- Annual review of information science and technology, 1966-
- Advances in information systems science, 1969-
- Advances in librarianship, 1970-

7. RETRIEVAL

the following processes are distinguished

a) manual or semi-mechanized
   - catalogue cards (see chapter 3.5)
   - synoptic cards
     with tabs in colour to indicate subjects
   - optical coincidence cards
   - edge-notched and slotted cards

b) mechanized
   - punched cards
   - aperture cards
     punched cards with microfilm inserted
   - paper tapes

c) automated
   - magnetic tapes

7.1 Optical coincidence cards

one card for each subject (field)
the perforations are made to indicate the *documents* dealing with the relevant subject

OCEANOGRAPHY

	1	2	3	4
0			o	
10		o		o
20		o		

in this example the documents 3, 12, 14 and 22 dealing with oceanography are registered

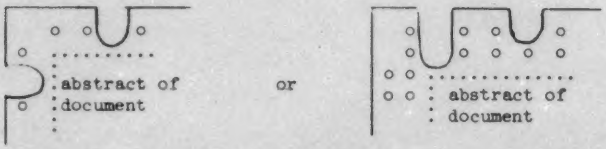
for retrieving documents the cards dealing with the requested subjects (e.g. cards "Oceanography" and "Baltic Sea") are superimposed; the light will pass through the relevant holes only, e.g. documents 12 and 14 only when 3 and 22 were not perforated in the "Baltic Sea" card

7.2 Punched cards

one card for each document
the punching identifies the *characteristics (subject)* of the document
the code used should be pre-established and preferably printed along the edges

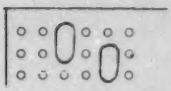
there are two types of cards:
- preperforated: edge-notched and slotted cards
- post-perforated: punched cards

a) preperforated
- edge-notched cards (marginal punching)



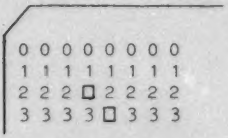
retrieval with needles: those responding to a characteristic punched drop down - the retrieving has to be repeated for each characteristic responding to the question

- body-punched or slotted cards



needles for all characteristics are inserted at the same time; cards responding to the question slip down, the others are retained by the needles

b) post-perforated
usually called "punched cards" although the card is not yet punched but has to be punched
system invented by Hollerith (1895), now called "IBM cards" or with other names according to their producers, and today primarily used for computer input



← supplementary positions

with or without abstract of document

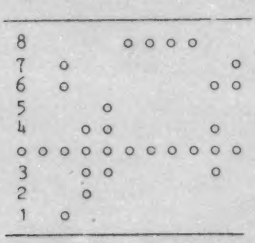
generally 80 vertical columns with figures 0 to 9 (10 figures) and 2 supplementary positions

there is usually no abstract on a punched card; but a special form of punched cards are the aperture cards: punched cards containing a film copy of the document (see chapter 8.3)

ISO/TC 97 standards:
ISO 1679 - 1973 *Representation of 7-bit coded character set on 12-row punched cards*
(formerly ISO/R 1679 - 1970)
ISO 1681 - 1973 *Unpunched paper cards. Specification*
(formerly ISO/R 1681 - 1970)
ISO 1682 - 1973 *80 Columns punched paper cards. Dimensions and location of rectangular punched holes*
(formerly ISO/R 1682 - 1971)
ISO/R 2021 - 1971 *Representation of 8-bit patterns on 12-row punched cards*

7.3 Paper tapes

tapes 25.4 mm wide, not perforated



there are (6 or) 7 channels (1 to 7), the 8th being reserved to indicate intervals between blocks of information (e.g. ... "8" The "8" Hague "8" ...)

the words are encoded on the transverse lines, each of which will represent only one character, e.g. in the example given above 7-6-1 may represent "a" according to a pre-established code

the texts are typed on special electric typewriters with punched card attachment: the text appears legibly on paper as in any typewriter but at the same time is encoded in the tape
possibility of reproducing the text (or part of it) on paper by running the tape again through the machine

ISO/TC 97 recommendations and standards:

ISO 646 - 1973 *7-bit coded character set for information processing interchange*
(formerly ISO/R 646 - 1967 for 6- and 7-bit sets)
with 6-bit code in Annex, no longer recommended
- 6 bit code set: 64 characters
- 7 bit code set: 128 characters
the character set comprises letters, figures, punctuation marks, and other symbols and controls

ISO 840 - 1973 *Numerical control of machines - 7 bit coded character set*
(formerly ISO/R 840 - 1968)
for paper tapes on 8 tracks

ISO 1113 - 1973 *Representation of 6- and 7-bit coded character sets on punched tape*
(formerly ISO/R 1113 - 1969)
in the 6-bit set the 8th position is never punched

ISO/R 1154 - 1969 *Dimensions for punched paper tape for data interchange*
dimensions and positions of holes

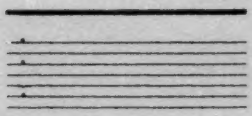
ISO 1729 - 1973 *Unpunched paper tape. Specifications*
(formerly ISO/R 1729 - 1971)
physical characteristics of paper tape of 25.4 mm width

ISO 2022 - 1973 *Code extension techniques for use with the ISO 7 bit coded character set*
extension of ISO 646 to an 8 bit code

further recommendations and standards for paper tapes:
- 1969: ISO/R 1056
- 1972: ISO 2195
- 1973: ISO 1057, 1058, 1059
- 1974: ISO 2539

paper tapes can be converted to magnetic tapes, thus allowing links to international data systems on magnetic tape when using the cheaper paper tapes

7.4 Magnetic tapes
tapes 12.7 mm wide



* tracks

* on the transverse lines the characters are encoded, e.g. in this example 1010010 may represent the character "b"

- other forms are: drums, discs, cards and cassettes

magnetic cards can be produced on the same typewriter used for punched tapes provided that there is an attachment for such cards

ISO/TC 46 standard
ISO 2709 - 1973 Format for bibliographic information interchange on magnetic tape

the American National Standards Institute adopted in 1970 a standard for "Bibliographic information interchange on magnetic tape"
UNISIST published in 1974 a "Reference manual for machine readable bibliographic descriptions" and created, at the British Library, the UNISIST centre for maintaining and updating the manual

ISO/TC 97 recommendations and standards:
ISO/R 961 - 1969 *Implementation of the 6- and 7-bit coded character sets on 7 track 12.7 mm (½ in.) magnetic tape*
ISO 962 - 1974 *Implementation of the 7-bit coded character set and its 7-bit and 8-bit extensions on 9 track 12.7 mm (0.5 in.) magnetic tape*
(replaces ISO/R 962 - 1969)
ISO 3275 - 1974 *Implementation of the 7-bit coded character set and its 7-bit and 8-bit extensions on 3.81 mm magnetic tape cassette for data interchange*

other recommendations and standards for magnetic tape processes are:
- 1969: ISO/R 1001
- 1971: ISO/R 1745, 1858, 1861, 1862, 1863, 1864
- 1972: ISO 2110, 2111
- 1973: ISO 963, 1155, 1177, 1859, 2593, 2628, 2629, 2690, 2711
- 1974: ISO 841, 1860, 2375, 2864, 2955, 2972

further recommendations for
a) character recognition
   - 1969: ISO/R 1004, 1073
   - 1971: ISO/R 1831
   - 1972: ISO 2033

b) flowchart symbols
   - 1973: ISO 1028, 2636

c) programming languages
   - 1972: ISO/R 1538 ALGOL
           ISO/R 1539 FORTRAN
           ISO/R 1989 COBOL

   the programming languages convert written programmes into machine codes
   see also chapter 3.42 for using the UDC as programming language

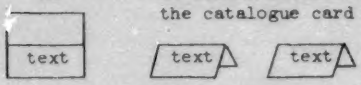
d) vocabulary
   ISO 2382 - *Data processing . Vocabulary*
   sofar published
   - Section 01: Fundamental terms - 1974
   - Section 04: Organization of data - 1974
   - Section 05: Representation of data - 1974
   - Section 06: Preparation and handling of data - 1974

   the material for magnetic tape data processing consists of
   - software: programmes, tapes, coding instructions (for programming languages and flowcharts see above)
   - hardware: the computers, terminals (on line)

8. REPROGRAPHY

the following processes are distinguished
a) copying (same size, one or more copies)
   - silver halide
   - diazo
   - thermographic
   - electrophotographic
b) duplicating (multicopying)
   - spirit duplicating
   - stencilling (duplicating)
   - offset printing (offset litho)
c) microcopying (reduced size)
   - microfilm
   - microfiche
   - enlargement

the reprography processes aim at obtaining one or more copies of a document; the simplest procedure, however, is to prepare copies at the time of making the original, i.e. by typewriter
there are two processes for obtaining copies by typewriter
- using carbon, up to 10 copies
- without carbon, up to 5 copies
  the paper of the copies is chemically treated for reproducing the text on the copies when typing or writing; with the NCR process (NCR = No Carbon Required, produced by National Cash Registers) or similar processes, identical cards can be prepared for files:



8.1 Copying
when selecting a copying process, it is wise a) to have a test made with one's own materials and originals; and b) to ascertain - besides the cost/benefit factor of the apparatus, copying material and copies - whether a dealer is nearby for services and, what is even more important, for obtaining photocopy material at regular intervals

ISO/TC 46 recommendation:
ISO/R 169 - 1960 *Sizes of photocopies (on paper) readable without optical devices*
A3, A4 (preferred) and A5
(cf. paper formats in chapter 1.4)

a) silver halide processes
conventional photographic papers are coated with an emulsion containing light-sensitive silver halide crystals; after exposure to the light of the photocopier, an invisable 'latent' image is formed; when the paper is immersed in a developing solution, the exposed crystals form the image; the crystals in the not affected areas are washed out; the print is then dried

- photostat (projection copying), a camera process producing same size, enlarged or reduced copies
- reflex (reflection copying), a contact copying process yielding same-size copies

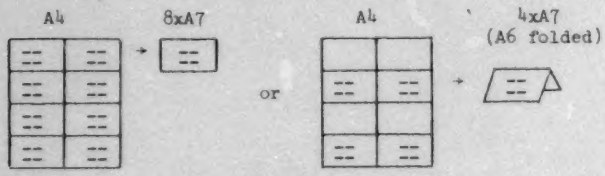
b) diazo (dyeline) process
the original to be copied must be printed on *one side* only on *translucent* paper; copying papers are coated with a diazo compound which combines with a 'coupler' in an alkaline environment to form a coloured dye; the diazonium salt is decomposed by ultra-violet light exposure (passing through the original) where no text occurred in the original

c) thermographic processes
the copy paper is placed, sensitized side up, on top of the document to be copied; heated by an infra-red lamp, the text is copied ('scorched') on the copy paper
- thermofax: direct process; pigment of original image must contain carbon; infra-red light passes through the sensitized paper and is absorbed by the non-image area; carbon in image heats up and develops an image on the copy paper (fast and dry process, but unstable images of poor quality)
- dual spectrum: using an intermediate sheet placed in contact with the original and exposed to reflected light; the intermediate sheet, now carrying the latent image, is then placed in contact with the copy paper, coated with silver behenate, and heated (dry process, good quality copies)

d) electrophotographic processes
- xerography: in-direct or transfer method, using an intermediate photo-conductive selenium plate on which a latent image is created (the charge dissipating where the original is blank); the surface is powdered (powder adheres to text places only) and the powder image is transferred by contact onto the copy paper (expensive equipment, can be rented or xerox copies are made by service bureaux)
- electrofax process: direct form of copying, the copy paper, coated with zinc oxide or similar compounds, receiving the electrostatic charge to render it sensitive to light; on exposure to light reflected from the original the charge will dissipate where the original was blank; the latent image develops using a powder or a special liquid toner, fixing in first case by heat, in latter case by suspension in liquid (expensive equipment, can be rented)

8.2 Duplicating
a) spirit duplicating, up to 200 copies
the text is typed on glossy paper of which the verso is in contact with the carbonized side of a special carbon paper - an inverted text is thus obtained on the verso of the original document; this master copy is duplicated in an alcohol duplicator which, for each copy, absorbs part of the carbon; thus the inverted text on the verso of the master gradually disappears

b) stencil duplicating, up to 2000 copies
the text is typed on stencils, cutting the wax sheet; in the duplicator ink passes through the perforations (i.e. the typed letters, lines or drawing) onto the copy paper - the stencil, if well preserved, may be reused later for a second or third run
the stencil process may also be used for making multiple cards for files, even on thick paper:



c) offset, unlimited number of copies
the master usually is paper on which the text is typed by typewriter - illustrations or graphs can be added to this text by pasting them onto the master
masters can also be obtained by the electrophotographic process, the thermographic process, the diffusion-transfer method and the diazo process
the text is photographed (and may be reduced or enlarged); the negative thus obtained is reproduced on a aluminium plate and becomes positive (usually 2 A4 pages or 4 A5 pages = A3, or 4 B5 pages = text surface of B3, are reproduced on one plate measuring 375 x 450 mm)
this process is now simplified by plastic plates on which the original is directly copied and positive (but needing care in preparation)
the aluminium (or plastic) plate is then run through the offset duplicator which uses an intermediate rubber blanket to produce positive copies on any normal quality of paper
the aluminium or plastic plates must be correctly preserved for later re-runs when the publication is out of print
since this process uses rather expensive machines and requires a qualified operator, it is usually advisable to have the offset reproduction done by outside offset services to which a camera ready copy is sent - but some of the latest machines are more easy to run

8.3 Microcopying
document photographed by a camera onto film producing a reduced-size image, to be read by a reader or to be enlarged to original size prints (see c)

a) microfilm (roll film)
ISO/TC 46 recommendations:
ISO/R 193 - 1961 *Microcopies on transparent bases. Sizes of recommended bases*
width of role 16 mm, 35 mm (preferred) and 70 mm; and the big formats 105, 125 and 150 mm, e.g. for journals

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ISO/R 218 - 1961 *Microcopies. Scale of 35 mm microfilm for international exchange*
minimum reductions recommended for use in readers and enlargers
- 1:14 for documents under A3 (297 x 420 mm)
- 1:20 for documents over A3

ISO/R 1116 - 1969 *35 mm and 16 mm microfilms, spools and reels*

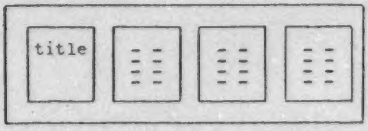
for legibility tests
1965: ISO/R 435 and 446
1968: ISO/R 689 and 782

for terminology
ISO/R 260 - 1962 *Terms relating to microcopies and their bases*
8 terms
ISO/R 371 - 1964 *Terms relating to microcopy apparatus*
5 terms

- aperture cards: punched cards containing a single frame of 35 mm film (e.g. one image in case of an engineering drawing or up to 8 images of A4 documents)

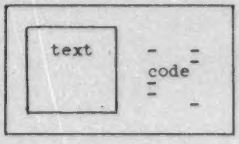
ISO 3272 - *Microcopying of technical drawings and other drawing office documents*:
1975: Part III: Unitized 35 mm microfilm carriers
NOTE: Parts I, Operating procedures, and II, Quality criteria and control, are in preparation

- filmstrips: usually ten images on a strip of roll film, the first containing the less reduced title



ISO/TC 42 (Photography) recommendation:
ISO/R 686 - 1968 *35 mm filmstrips. Dimensions and formats*
maximum length 320 mm with 73 images 24 x 38 mm

- photographic selectors: film in card form contains both the text and a code (e.g. Filmorex, France)



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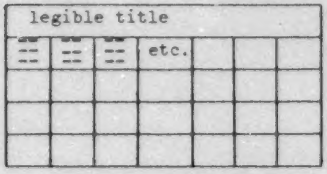
- duplicates: facsimiles of a microfilm can be made by three processes: silver halide or vesicular film (both reversing the original, i.e. negative copies from positive originals and positive copies from negative originals) or diazo (not reversing the image of the original film - also the cheapest duplicating process); usually copying is done by roll-to-roll duplicators providing absolute contact between the master and the copy

- COM (Computer Output Microfilm) recorders take as input computer-generated machine-readable data and convert these into human-readable data on microfilm or microfiche

b) microfiche
a card-size film on which the images are reproduced in rows of frames; they may thus contain all pages of a document or just one technical drawing (reduced filing system)



microfiches are transparent (the earlier opaque "microcards" are no longer produced)

ISO/TC 46 recommendations and standards:
ISO/R 193 - 1961 *Microcopies on transparent bases. Sizes of recommended bases*
format 75 x 125 mm (= International Library Card) and 105 x 148 mm (A6)
the latter size was adopted in 1968 as UN standard
ISO 2707 - 1973 *Transparent A6 size microfiche of uniform division. Image arrangements No. 1 and No. 2*
No. 1 = 5 rows of 6 or 12 images (up to 60 frames)
No. 2 = 7 rows of 7 or 14 images (up to 98 frames)
reduction 1:12 to 1:25.5
ISO 2708 - 1973 *Transparent A6 size microfiche of variable division. Image arrangements A and B*
total image area A: 95 x 133 mm
total image area B: 82.5 x 141 mm
excluding the heading (i.e. title) area, adapted to the sizes of the original documents

information on the utilization of microfiches may be obtained from the Microfiche Foundation, Nieuwe Laan 76, Delft, Netherlands

- micropublishing: publication in microform, usually on microfiches
  a) retrospective, for out-of-print documents (often in microfilm form)
  b) original, in microform only
  c) alternative, i.e. microforms in addition to printed publication of documents

c) readers
microcopies can be read only with the help of readers or have to be enlarged
some apparatus, reader-printers, make enlarged copies of pages identified through the reader

ISO/TC 46 recommendation:
ISO/R 452 - 1965 *Essential characteristics of 35 mm microfilm reading apparatus*

for microfiches special readers are required (reading row by row), but some readers can handle both film and fiche

8.4 Copyright
"fair copying" means making one copy only of an article for a client who will use it for private, non-commercial purposes

on 2-4 May 1973, Unesco and WIPO (World Intellectual Property Organization) organized in Paris a meeting of a "Working Group on Reprographic Reproduction of Works Protected by Copyright"; its draft recommendations were discussed at a meeting of the Intergovernmental Copyright Committee held in Paris, 5-11 December 1973 - it was then agreed that a subcommittee should elaborate a report for a further meeting in Washington, D.C., 16-21 June 1975; final adoption of a new recommendation at Unesco's General Conference in 1976

9. ORGANIZATION OF INFORMATION

9.1 International organizations
- international non-governmental organizations (NGOs) whose members are professional organizations
- intergovernmental organizations, whose members are states

9.11 NGOs

a) International Federation for Documentation (FID)
secr.: Hofweg 7, The Hague, Netherlands
Secretary General: W. van der Brugghen

1895: Institut International de Bibliographie (IIB)
founders: P. Otlet and H. La Fontaine
1931: Institut International de Documentation (IID)
1938: Fédération Internationale de Documentation (FID)

aim: to promote, through international cooperation, research in and development of documentation - organization, storage, retrieval, dissemination and evaluation of information, however recorded - in the fields of science, technology, social sciences, arts and humanities

organs
- General Assembly (national and international members)
- Council
- Executive Committee
- Secretariat
- Committees
- Regional Commissions

a Programme Committee was established in 1975 to prepare recommendations for FID's identity in the present world information field, to improve professional representation in the programme, and to provide for better services to information experts - for presentation at the 1976 Conference

members and affiliates
- National Members: 24 in Europe, 15 in the Americas, 16 in Asia, 7 in Africa
- International members
- International, institutional and personal Affiliates (almost 400)

regional commissions
- FID/CLA (1961) for Latin America
- FID/CAO (1968) for Asia and Oceania

NOTE: FID/CAO will be split into Eastern and Western regional commissions

committees and working groups

- FID/CCC, Central Classification Committee
  secr.: FID, 7 Hofweg, The Hague, Netherlands
  development of the Universal Decimal Classification (UDC), mechanization of processes using UDC, publication of UDC editions in some 25 languages
- FID/CR, Classification Research
  secr.: DRTC, 112 Cross Road 11, Malleswaram, Bangalore, India
  research in classification, organization of international conferences (3rd in Bombay, January 1975), publication of reports and a newsletter
- FID/DC, Developing Countries
  secr.: IRANDOC, Shahreza Ave., Kakh Corner, P.O. Box 11-1387, Tehran, Iran
  study and promotion of information and documentation in developing countries, publication of reports and a newsletter
- FID/DT, Terminology of Information and Documentation
  secr.: VINITI, Baltijskaja ul. 14, Moscow A 219, USSR
  promotion of terminological control in the information field
- FID/ET, Education and Training
  secr.: Leitstelle Politische Dokumentation an der Freien Universität Berlin, Paulinenstrasse 22, 1 Berlin 45, Germany
  study of methods for training information workers and users, organization of professional seminars and advanced training courses for teachers
- FID/II, Information for Industry
  secr.: DTO, Ørnevej 30, 2400 Copenhagen NV, Denmark
  needs of industry for information, sources of information for industry, organization of industrial information services, publication of bibliographies and directories
- FID/LD, Linguistics in Documentation
  secr.: Center for Applied Linguistics, 1611 North Kent Street, Arlington, Va. 22209, USA
  study of linguistic problems in the operation of information services, linguistics in information science, publication of an abstract journal
- FID/RI, Research on the Theoretical Basis of Information
  secr.: VINITI, Baltijskaja ul. 14, Moscow A 219, USSR
  study of the theory of information science, organization of meetings, publication of studies in the information field
- FID/TMO, Theory, Methods and Operations of Information Systems and Networks
  secr.: INSPEC, The Institution of Electrical Engineers, Savoy Place, London WC2R OBL, U.K.
  theoretical and practical aspects of communication and processing of information in computer-based systems and networks, publication of reports

there are moreover working groups for the development of a Broad System of Ordering (UNISIST programme), business archives, and data documentation

congresses
- 1975: Symposium on "Information Systems Design for Socio-economic Development" and 80th Anniversary of FID (Brussels)
- 1976: 38th FID Conference and International Congress on "Information and Development" (Mexico)
- 1978: 39th FID Conference and Congress (Edinburgh, Scotland)

publications
- FID Yearbook (annual): Members, Affiliates, Council, Committees and Working groups
- FID Statutes, Rules of procedure and Terms of reference of FID Committees
- FID Annual Report
- FID News Bulletin (monthly)
- R & D Projects in Documentation and Librarianship (monthly): some 300 projects per year
- Extensions and Corrections to the UDC (annual - proposals for revision are circulated in P-notes)
- FID Publications Catalogue (annual): some 150 titles on information science, documentation practice, mechanization, linguistics, training and classification

b) International Federation of Library Associations (IFLA)
secr.: Netherlands Congress Building, Tower, P.O.B. 9128, The Hague
Secretary General: Miss M. Wijnstroom

founded in 1927

aim: to promote cooperation in the field of librarianship and bibliography

organs
- General Council (Board + member associations)
- Executive Board
- Consultative Committee (Board + Chairmen of Sections and Committees, and representatives of regional groups)
- Secretariat
- Sections (for types of libraries)
- Committees (for problems of librarianship)
- Regional Groups

a new programme elaborated by a Programme Development Group was discussed at the 1975 meeting in Oslo and will be finally adopted at the 1976 meeting

members
- International Member Associations
- National Member Associations
- Associate Members: international, national

committees and offices
- committees for bibliographical control, universal availability of publications, training, management and technology
- working groups for developing countries, and editors of library journals
- International Office for UBC (Universal Bibliographic Control) in London
- Office for International Lending, London

congresses
- 1975: 41st General Council Meeting (Oslo)
- 1976: Seminar on "Eastern publications: their control and use by East and West" (Seoul)
  42nd General Council Meeting (Lausanne)
- 1977: 43rd General Council Meeting and 50th Anniversary of IFLA (Brussels)

publications
- IFLA Annual (report of annual meeting)
- IFLA Directory (members, committees, statutes, publications)
- IFLA Journal (quarterly)
- International Cataloguing (quarterly)

c) International Council on Archives (ICA)
secr.: 60 rue des Francs-Bourgeois, 75003 Paris
Executive Secretary: Mr. C. Kecskeméti

founded in 1948

organs
- General Assembly (meeting every fourth year)
- Executive Committee
- Bureau

"Round Tables" are organized annually as professional meetings

members
- central directorates of archives
- national associations of archives
- institutions
- individuals

committees
- Archival development (for developing countries)
- Microfilm
- Automation
- Sigillography

publications
- Archivum (annual)
- ICA Bulletin (2x per year)

d) International Organization for Standardization (ISO)
secr.: 1 rue de Varembé, Geneva, Switzerland

1926: International Federation of the National Standardizing Associations (ISA)
1947: International Organization for Standardization (ISO)

aim: to obtain world-wide agreement on international standards with a view to the expansion of trade, the improvement of quality, the increase of productivity, and the lowering of prices

organs
- General Assembly, of members
- Council (President and 14 representatives of national member bodies)
- Committees
  e.g. DEVCO - Development Committee
  INFCO - Standing Committee for the study of scientific and technical information on standardization
- Secretariat
- Technical Committees (TCs)

members
- member body: national standards organization (over 60)
- correspondent member, in a developing country which has not yet a national standards body (17 in 1974)

technical committees
there are over 150 TCs, mainly in the field of technology; P-members fully participate in the work, O-members are kept informed; one of the P-members acts as secretariat for a TC

TCs in the information field are
(for details, see Annex A)
- ISO/TC 6 Paper, board and pulps
- ISO/TC 37 Terminology (principles and coordination)
- ISO/TC 42 Photography
- ISO/TC 46 Documentation
- ISO/TC 68 Banking procedures
- ISO/TC 95 Office machines
- ISO/TC 97 Computers and information processing
- ISO/TC 130 Graphic technology
- ISO/TC 145 Graphic symbols
- ISO/TC 154 Documents and data elements in administration, commerce and industry

publications
- ISO Memento (members, committees)
- ISO Catalogue (list of standards)
- ISO Annual Review (annual report)
- ISO Bulletin
- ISO International Standards (up to 1971 called "Recommendations"- ISO/R) - DIS = Draft International Standard

ISO Standards are elaborated by ISO/TCs; they can be ordered from national standards bodies, e.g.
USA - American National Standards Institute (ANSI), 1430 Broadway, New York, N.Y. 10018
UK - British Standards Institution (BSI), Sales Department, 101 Pentonville Road, London N1 9ND

the ISO thesaurus (English, French, Russian) is expected to be ready by the end of 1975

e) International Council of Scientific Unions (ICSU)
includes the following committees and services
- CODATA: Committee on Data for Science and Technology
  task groups for presentation of data, computer use (copyright), training for data handling, etc.
- COSTED: Committee on Science and Technology in Developing Countries
- ICSU AB: Abstracting Board
  secr.: 17 rue Mireabeau, Paris 16e
  Secretary General: Mrs. J. Poyen
  working groups for physics (International Classification for Physics, 1975), biology, bio-engineering, chemistry, geology thesaurus, copyright, cooperation among editors, bibliographic descriptions (jointly with UNISIST)

f) International Council for Reprography (ICR)
Secretary General: Mr. T. Hampshire, Sandal-Combe, Fairview, Andover Road, Newbury, Berkshire, United Kingdom

organizes international conferences; dictionary in 7 languages

g) International Micrographic Congress (IMC)
Ex. Secretary: Mr. G.J. Bujkovsky, P.O. Box 484, Del Mar, Calif. 92014, USA
- members: national microfilm associations and individuals in countries with no NMA

h) International Federation for Information Processing (IFIP)
- technical committees for 1. terminology; 2. programming languages; 3. education; computer application in 4. medicine and 5. technology; 6. data communication; 7. optimization of systems
- IAG: Administrative Data Processing Group
  secr.: Paulus Potterstraat 40, Amsterdam, Netherlands

i) International Committee for Social Science Information and Documentation (ICSSD)
Secretary General: Prof. J. Meyriat, 27 rue Saint-Guillaume, Paris, 7e, France
publication: International Bibliography of the Social Sciences (under Unesco sponsorship): annual volumes for economics, political science, social and cultural anthopology, sociology

j) World Federation of Engineering Organizations (WFEO)
secr.: Savoy Place, London, United Kingdom
- Committee on Engineering Information

k) Asociación Latinoamericana de Escuelas de Bibliotecología y Ciencias de la Información (ALEBCI)
secr.: Colegio de Bibliotecología, Facultad de Filosofía y Letras, Universidad Nacional Autónoma de México, Mexico 20, D.F., Mexico

l) International Association of Agricultural Librarians and Documentalists (IAALD)
secr.: Royal Military College of Science, Shrivenham, Swindon, Wiltshire, United Kingdom
publication: Quarterly Bulletin of IAALD

9.12 Intergovernmental organizations

a) Unesco (United Nations Educational, Scientific and Cultural Organization)
secr.: Place de Fontenoy, Paris 7e

main sectors
- Education
- Natural sciences
  Division of Scientific and Technological Documentation and Information
    UNISIST programme (see chapter 9.2)
- Social sciences, Humanities and Culture
    DARE programme (computerized data retrieval system for the social sciences and humanities)
- Communication
  Dept. of Documentation, Libraries and Archives
    NATIS programme (see chapter 9.2 and 9.4)
  Division of Free Flow of Information and Book Development
    Florence and Beirut agreements
    IBY (International Book Year) programme

a restructuring of the activities in the information field - presently under two Departments, cf. UNISIST and NATIS - is being studied

publications
- Unesco Chronicle
- Unesco Bulletin for Libraries
- UNISIST Newsletter
- Bibliography. Documentation. Terminology
- NATIS News

b) Organization for Economic Cooperation and Development (OECD)
secr.: 2 rue André-Pascal, Paris 16e

c) Council of Mutual Economic Assistance (CMEA, also known as COMECON)
secr.: Prospekt Kalinina 56, Moscow
- International Centre for Scientific and Technical Information, Kržižanovskogo 20/30, Moscow
    Bulletin of Coordinating Centres

d) United Nations Industrial Development Organization (UNIDO)
secr.: P.O. Box 707, Vienna, Austria
- clearinghouse for industrial information
- sponsors since 1970 the annual international training courses for industrial information personnel, held at VINITI, Moscow, (each year in a different language: 1974 Spanish, 1975 French, 1976 English)
- INDIS (UNIDO Industrial Information System): developed a thesaurus of industrial development terms
- UNIDO guides to information sources
  being translated by IDCAS into Arabic
- Industrial Development Abstracts

e) International Development Centre for Arab States (IDCAS)
secr.: P.O. Box 1297, Cairo, Egypt
  founded by the League of Arab States
- Department of Documentation and Scientific Information

f) Arab League Educational, Cultural and Scientific Organization (ALECSO)
- Department of Documentation and Information, 109 Tahrir Street, Midan, El-Dokki, Guiza, Egypt
  training courses, publication of "Arab science abstracts", terminology, bibliographical guide to Arab reference books (in preparation)

g) United Nations Institute for Training and Research (UNITAR)
secr.: Palais des Nations, 8-11 Avenue de la Paix, Geneva
  organizes seminars on the organization of documentation of intergovernmental organizations

h) International Development Research Centre (IDRC)
secr.: P.O. Box 8500, Ottawa, Canada
  supports and conducts research into problems of developing regions and means for applying knowledge to their socio-economic development

9.2 International information systems

UNISIST (World Science Information System)
  set up in 1972 by Unesco and ICSU; the social science component is being established
national committees, advising the national focal points
publications:
- UNISIST Newsletter
- Information policy objectives (draft April 1974)
the following systems were set up in the framework of UNISIST:
INIS, AGRIS, DEVSIS, ISDS, INFOTERM (see below)

NATIS (National Information Systems)
  set up in 1974 by Unesco, FID, IFLA and ICA
guidelines for implementing NATIS are being prepared for adoption by the Unesco Conference in 1976
  a programme for national efforts complementary to the UNISIST programme (cf. chapter 9.4)
publication: NATIS News

INIS (International Nuclear Information System)
secr.: IAEA, P.O. Box 590, Vienna
international information system, based on national input to an international centre which provides for the output and dissemination of collected information; publication of "INIS Atomindex"
several guidelines were established for operating the system: INIS Reference Series, e.g. for cataloguing, abstracts, tape specifications, thesaurus
the system serves as a model for other international systems being established

AGRIS (International Information System for the Agricultural Sciences and Technology)
secr.: FAO, Viale delle Terme di Caracalla, Rome
Level One: current awareness service
Level Two: sectorial development: forestry, tropical agriculture, veterinary science, nutrition
- AGRINDEX, monthly indexing service
- AGLINET International Centre, operates through four regional centres (Colombia, Nigeria, UK, USA)
- CARIS: Computerized Agricultural Information System

DEVSIS (Development Sciences Information System)
secr. (of study team): International Labour Office, Geneva
cosponsored by IDRC, ILO, OECD, UNDP and Unesco
publication: DEVSIS Newsletter

ISDS (International Serials Data System)
secr.: 20 rue Bachaumont, 75002 Paris
registration of serials with ISSN (see chapters 3.2 c and 9.3)
publication: Bulletin de l'ISDS/ISDS Bulletin, lists serial titles recently recorded
a full list of titles with their ISSNs will appear in 1975

INFOTERM (International Centre for Terminology)
secr.: Österreichisches Normungsinstitut, Postfach 130, A-1021 Vienna
development of a network of terminological agencies, and publications

MARC (MAchine-Readable Catalogue cards)
developed by the Library of Congress, Washington, D.C.
catalogue on magnetic tape
the British National Bibliography (BNB) and others have joined in this project
a "MARC International Format (MIF)" is being developed by an IFLA/UBC working group

INTERMARC
secr.: Bureau pour l'Automatisation des Bibliothèques, 61 rue de Richelieu, 75002 Paris
unofficial organization of European national bibliographic agencies
programmes for formats for monographs (French edition published 1975), serial publications, non-book materials, etc.

UBC (Universal Bibliographic Control)
secr.: IFLA International Office for UBC, The British Library,
Reference Division, Great Russell Street, London
programme for international bibliographic control through
national bibliographic activities

9.3 International identification codes
(for classification systems, see chapter 3.42)

ISBN (International Standard Book Number)
developed by ISO/TC 46, based on original British project (BSI's (S)BN)
in 1967
for details see chapter 3.2 c

ISSN (International Standard Serial Number)
also developed by ISO/TC 46
for details see ISDS (chapter 9.2) and bibliographic references
for cataloguing (chapter 3.2 c)

CODEN
a 6-alpha code identifying periodical titles (cf. 3.2 a)
developed by ASTM, now run by the American Chemical Society

9.4 National organization
in 1963 an advisory committee established by the President of
the USA published the so called "Weinberg report", containing
recommendations on the organization of science and information in
the United States and the responsibilities of the technical
community and government in the communication of information:
- information as an integral part of science
- the responsibility of the author in relation to the processing
of information produced by him
- training in documentation techniques
- study of new methods and techniques
- creation of information centres
- standardization of methods used

in 1974 the Intergovernmental Conference on the Planning of
National Documentation, Library and Archives Infrastructures
recommended the creation or improvement of national information
systems (NATIS) and adopted objectives for
- a national information policy, reflecting the needs of all
sectors of the community, to be incorporated in the national
development plan
- assessment of users' needs
- an analysis of existing information sources
- programmes for training information manpower
- provision for the application of information technology,
achieving maximum utilization of available resources and
reaching compatibility and standardization

any national system, however, should also take into account existing and planned international systems, many of which are computerized and have their information available on magnetic tape, e.g.

- MEDLARS (National Library of Medicine, Washington, D.C.), indexing the world's biomedical literature
- Excerpta Medica (Amsterdam), abstracting the world's biomedical literature
- Chemical Abstracts (Washington, D.C.) abstracting the world's chemical literature
- INIS (see chapter 9.2)

at the national level documentation services should cooperate in information pools in broad disciplines, e.g. agriculture, economy, medicine & health, thus avoiding duplication of effort and economizing available funds:

- individual documentation centres, using simple documentation techniques, cooperate in pools
- pools cooperate for interdisciplinary, mission-oriented aspects and use more advanced techniques, e.g. paper tape
- the national documentation centre is fully automated: the pools' paper tapes are converted to magnetic tape
- the national centres cooperate with the international information systems:
  a) national input to the system, and
  b) obtaining information from other countries registered in the international system, to be disseminated to the country's documentation centres

9.5 Organization of an information service

in order to properly fulfill its function, an information service should

- be aware of the information needs of its clientele
  a) through intimate contacts with the in-house departments of the organization
  b) through users profiles of the out-house customers
- obtain the information required
- regularly circularize digested information received to its customers

personnel (s.a. chapter 10)

besides a thorough knowledge of the documentation techniques, processes and information sources, personnel should have

- sufficient knowledge of foreign languages
- sufficient understanding of the branch in which the organization works and the special terminology used

organization of the work

- acquisition of documents needed:
  a) major abstracting (or indexing) journals in the field of activity
  b) selected primary journals
  c) some reference guides
  d) dictionaries

these documents can sometimes be obtained through exchange, or on loan (if temporarily needed), through photocopies or films of relevant parts of documents, or failing these relatively inexpensive procedures, by buying the documents
working in pools (see chapter 9.4) may save money
- digesting information received, including its evaluation
besides articles and books, also note advertisements, book reviews, meetings announced, exhibits, etc.
- bibliographic description of the documents
- filing the information: cards, tapes, microfilm
- reproduction of required documents
- dissemination of the information in the form required by the user
sometimes detailed reports are required

equipment
the budget usually will be a limiting factor in the acquisition of equipment and the hiring of specialized manpower to operate more advanced machinery
in most cases all that is needed are typewriters, c. dfiles, a stencil duplicator and a simple photocopying machine (which also copies from books)

9.6 Clearinghouses

a) for obtaining translations and photocopies
- European Translations Centre (ETC), Doelenstraat 101, Delft, Netherlands
- The British Library Lending Division (formerly National Lending Library - NLL), Boston Spa, England
- Centre National de la Recherche Scientifique (CNRS), 15 Quai Anatole France, Paris

b) for obtaining information on classification systems, thesauri, etc.
- Instytut Informacji Naukowej, Technicznej i Ekonomicznej (IINTE), Al. Niepodległości 188, Warsaw
"Bulletin of the Clearinghouse" (non-English and multilingual works)

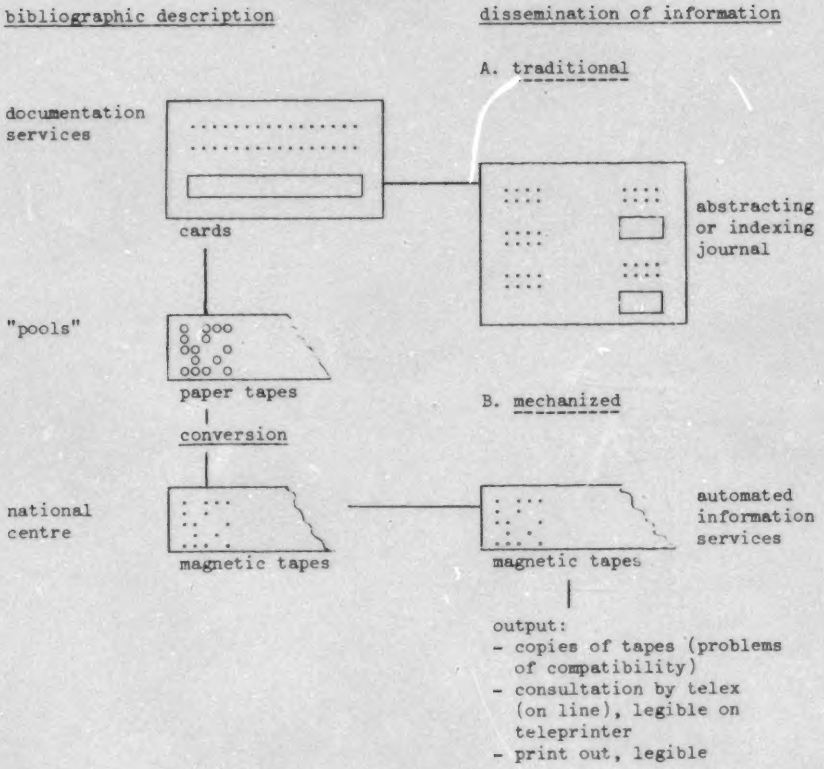
c) for obtaining information on cataloguing
- IFLA Committee on Cataloguing, International Office for UBC, c/o Reference Division, The British Library, Great Russell Street, London WC1
"International Cataloguing"

d) for obtaining information on bibliographic descriptions
- UNISIST Centre for Bibliographic Descriptions, c/o The British Library, London

e) for obtaining information on standards
- International Information Centre for Standards in Information and Documentation (ISODOC), c/o ISO/TC 46, c/o DIN (formerly DNA), 4-7 Burggrafenstrasse, 1 Berlin 30

f) for obtaining information on research in documentation and library science
(see chapter 1.5)

RESUME II


bibliographic description
dissemination of information
A. traditional
documentation services
cards
abstracting or indexing journal
"pools"
paper tapes
B. mechanized
conversion
national centre
magnetic tapes
magnetic tapes
automated information services
output:
- copies of tapes (problems of compatibility)
- consultation by telex (on line), legible on teleprinter
- print out, legible

10. TRAINING

different training programmes are required for
- documentalists
- teachers and course organizers
- users of documentation

this chapter mainly deals with the first category

10.1 Types of training
- full-time or part-time courses of at least 6 months up to 2-3 years for training documentalists for different levels of employment
  part-time courses usually for those already working in the profession
- short refresher courses to be held annually, during one or more days, for those who attended earlier courses
- advanced training courses, institutes or seminars on particular subjects to acquaint those in the profession with the latest developments and techniques
- stages in the country or abroad
  advanced training courses and stages in foreign countries are primarily meant for documentalists in leading positions and for teachers (note that advanced techniques cannot always be used in home countries)

in developing countries, but also elsewhere, it might be helpful to organize courses on a regional level for countries with similar interests or language

the organization of a course in the country of the students is less expensive than courses in foreign countries: lecturers only have to travel and for limited periods (usually 2-4 weeks)

10.2 Course organization

- students
  should have completed at least secondary school education, and preferably have had advanced education or professional practice in the field
- lecturers
  should be familiar with the situation in the country of the students
  courses should gradually provide lecturers from the country or region, to take over from foreign lecturers
- course organizers
  should preferably be from the country - perhaps initially assisted by a foreign consultant
  course organizers should prepare the programme, preferably in consultation with the lecturers, organize practical work and technical visits in between the stays of the lecturers, and organize the examinations

a good library and instructional material (including samples of abstracting journals, thesauri, microfiches, paper tapes, etc.) should be at the disposal of students and lecturers

- programme
the lectures should preferably commence with a general introduction to the field
    the French edition of this syllabus was used for this purpose during 2-week introductory courses
and be followed by specialized courses preferably in the order given in this syllabus
    for instance, it will confuse the student if at a too early stage lectures are given on reprography or mechanization

- examination
it is advisable that each lecturer concludes his course by a brief written examination

the figures to be obtained at the final examination may be based on
a) work during the course
   - the lecturer's figures
   - figures for practical work
   - term paper (subjects to be selected by the course organizer, if possible in consultation with the lecturers)
b) final examination
   - preparing the bibliographic description (possibly with an abstract) for an article or other document
   - making catalogue entries for selected documents
   - written questions (preferably proposed by the lecturers)
   - interrogation (preferably by the lecturers, see below)

if possible, the lecturers should be invited to attend the final examinations
    this provides the only opportunity for all lecturers (from the country and from abroad) to meet together and to discuss with the course organizers desired improvements in the programme

LITERATURE
a selected list

1. Introduction

General works

- Mikhailov, A.I. and Giljarevskij, R.S. - An introductory course on informatics/documentation - The Hague, FID, 1971, 204 p. (FID 481)
- Coblans, Herbert - Librarianship and documentation: an international perspective - London, André Deutsch, 1974, 142 p.
  characteristics, international approaches, and international organizations
- Hanson, C.W. - Introduction to science information work - London, Aslib, 1971, VI + 200 p.
- Loosjes, T.P. - On documentation of scientific literature - London, Butterworth, 1973, 2nd ed., 187 p.

Standardization

- International standardization of library and documentation techniques - Paris, Unesco, 1972, 241 p. + annexes (COM/WS 251)

Terminology

- Wersig, G. and Neveling, U. - Terminology of documentation (English-French-German) - Paris, Unesco, 1971, 257 p.
- Stolk, H.A. and Holloway, A.H. - Glossary of documentation terms. Part I: General terms, 1974, 40 p.; Part II: Computer terms - Neuilly sur Seine (France), NATO Advisory Group for Aerospace Research and Development
- Schultz, Claire K. - Thesaurus of information science technology, rev. ed. - Washington, D.C., Gryphon House, 1974, 133 p.
- Clason, W.E. (comp.) - Elsevier's dictionary of library science, information and documentation - Amsterdam, Elsevier Publishing Comp., 1972, 597 p.
  5439 entries, English/American, French, Spanish, Italian, Dutch, German
- Terminologie de base de la documentation - Luxembourg, Commission des Communautés Européennes, 1973, 124 p.
  124 terms with definitions in English, with French, German, Italian, Dutch and Danish equivalents

Research

- Registers of R & D projects in documentation and librarianship. A survey of international and national efforts - In: "FID News Bulletin", Vol. 25 (1975), No. 4, pp. 47-49

2. Primary publications

Serials

- Osborn, Andrew A. - Serial publications: their place and treatment in libraries - Chicago, American Library Association, 1973, 434 p.

Newspapers

- Guidelines for newspaper libraries - Reston, Virginia, American Newspaper Publishers Association, 1974
  filing systems, clipping collection, photographic material, management

Patents

- P. Liebesny (ed.) - Mainly on patents. The use of industrial property and its literature - London, Butterworth, 1972, 210 p.
  British and foreign patent systems, patents as technical information sources, subject searching, trade marks, etc.

Non-book materials

- Chisholm, M.E. - Media indexes and review sources - College Park, Md. (USA), School of Library and Information Services, University of Maryland, 1972, 84 p.
  user access to non-print materials
- Horner, John - Special cataloguing - London, Clive Bingley, 1973, 256 p.
  non-book materials and special subject collections
- Kaiser, Francis E. (ed.) - Handling special materials in libraries - New York, Special Libraries Association, 1974, 172 p.
- Non book materials cataloguing rules - London, National Council for Education Technology, 1973 (compiled by the Library Association Media Cataloguing Rules Committee)
- Weihs, J.R., Lewis, S. and Macdonald, J. - Nonbook materials. The organization of integrated collections - Ottawa, Canadian Library Association, 1973, 107 p.
  integrating all entries in one catalogue

3. Bibliographic description

Thesauri

- Gilchrist, A. - The thesaurus in retrieval - London, Aslib, 1971, VIII + 184 p.
  construction and presentation of various thesauri
- Soergel, D. - Indexing languages and thesauri: construction and maintenance - Los Angeles, Melville Publishing Co., 1974, 632 p.

Classification

- Maltby, Arthur (ed.) - Classification in the 1970s. A discussion of development and prospects for the major schemes - Hamden, C.T. (USA), Shoe String Press, 1972, 269 p.
  BC, CC, DC, LC, UDC, and general articles
- Wynar, B.S. - Introduction to cataloguing and classification - 4th rev. ed. - Littleton, Colorado, Libraries Unlimited, 1972, 344 p.
- Painter, Ann F. (ed.) - Classification: theory and practice - Philadelphia, 1974, 120 p. (Drexel Library Quarterly, Vol. 10, No. 4)
- Key to information, Universal Decimal Classification - The Hague, FID, 1970, 14 p. (FID 466)
- Mills, J. - Guide to the Universal Decimal Classification (UDC) - London, British Standards Institution, 1973, 128 p. (FID 345)
  introduction, outline of schedules, selected list of users
- Foskett, A.C. - The Universal Decimal Classification: the history, present status and future prospects of a large general classification scheme - London, Clive Bingley/Hamden, Conn. (USA), Shoe String Press, 1973, 171 p.
- Rigby, Malcolm - Computers and the UDC. A decade of progress 1963-1973 - The Hague, FID, 1974, 108 p. (FID 523)
  list of 60 experimental or operational systems in 15 countries; extensive bibliography
- Proceedings of Second Seminar on UDC and Mechanized Information Systems (Frankfurt/Main, June 1970) - Lyngby (Denmark), FID/CR, c/o Danish Centre for Documentation, 1971, 230 p. (FID 405:11)
- Wellisch, H. - The Universal Decimal Classification. A programmed instruction course - College Park, Md., University of Maryland School of Library and Information Services, 1970, 195 p. (FID 467)

Cataloguing
(for non-book materials, see Literature chapter 2)

- Statement of principles, adopted at the International Conference on Cataloguing Principles (Paris, October 1961) - London, IFLA Committee on Cataloguing, 1971, XVIII + 119 p.
- Bakewell, K.G.B. - A manual of cataloguing practice - New York, Pergamon Press, 1972, 300 p.
  nature and purpose, major cataloguing codes, special problems
- Escreet, P.K. - Introduction to the Anglo-American Cataloguing Rules - New York, Seminar Press, 1971, 384 p.
- Manheimer, Martha L. - Cataloging and classification: a workbook New York, Marcel Dekker, Inc., 1975, 141 p.
  part 1 is devoted to the ISBD(M) as adopted in the rev. chapter 6 of the Anglo-American Cataloging Rules; many samples are included

7. Retrieval

- Kent, Allen - Information analysis and retrieval - New York, Becker and Hayes/John Wiley & Sons, 1971, 367 p.
  basic elements of information retrieval
- Meek, C.L. - Glossary of computing terminology - Riverside, N.J. (USA), CCM Information Corp., 1972, 398 p.
  with lists of equipment and manufacturers

8. Reprography

General

- Bell, D. - Reprography for libraries - London, Clive Bingley, 1972
- Leisinger, Albert H. - A study of the basic standards for equipping, maintaining and operating a reprographic laboratory in archives of developing countries - Brussels, ICA, 1973, 101 p.
  also valid for any library throughout the world
- Document Reproduction Survey - In: "FID News Bulletin"
  quarterly surveys of latest developments

Microfilm and Micropublishing

- Microfilm in the office. An introduction to microcopying - London, BSI, 1972, 11 p.
  basic information with emphasis on business documentation; incl. micropublishing
- Barrett, W.J. - 35 mm microfilming for drawing offices - London, Focal Press, 1970
- Williams, B.J.S. - Miniaturized communications; a review of microforms - London, The Library Association and NRCd, 1970
- Spigai, F.G. - The invisible medium: the state of the art of microform and a guide to the literature - Washington, American Society for Information Science, 1973

COM

- Gildenberg, Robert F. - Computer-Output-Microfilm systems - New York, Wiley, 1974, 199 p.
  design, installation and evaluation of COM systems, and combinations with other systems

Copyright

- Omnibus copyright revision. A comparative analysis of the issues - Washington, American Society for Information Science, 1973, 280 p.
  analysis of the impact of U.S. legislation on all types of materials
- Smith, A.D. - Microfilm; some legal implications - London, Business Equipment Trade Association, 1972
  legal aspects of maintaining records on microforms, and list of documents not to be destroyed

9. Organization of information

Information systems and services

- Weisman, H.M. - Information systems, services and centers - Chichester, Sussex (UK), J. Wiley & Sons, 1972, 260 p.
- Inventory of major information systems and services in science technology - Paris, OECD, 1971, 340 p.
- UNISIST. Synopsis of the feasibility study on a World Science Information Systems - Paris, Unesco, 1971, 92 p.
- UNDIS: The United Nations documentation information system. A handbook of products and services - New York, UN, 1974, 37 p.
  also introduces UNDEX, the UN Documents Index series

UBC

- Anderson, Dorothy - Universal Bibliographic Control. A long term policy, a plan for action - IFLA, 1974, 87 p.

National structures

- Using and improving national information systems for development. Some practical applications for policy makers (draft) - Paris, Unesco/UNISIST, 1974, 45 p. (SC/74/WS/53)
- Intergovernmental Conference on the Planning of National Documentation, Library and Archives Infrastructures (Paris, 23-27 September 1974). Final report - Paris, Unesco, 65 p.
  reports of the three working groups: I. Integrated planning, II. Application of technology, and III. Planning manpower; recommendations; national information systems (NATIS): objectives for national and international action
- Toward a national program for library and information services: goals for action - Washington, D.C., National Commission on Libraries and Information Science, 1975, XII + 106 p.
- Study on national structures for documentation and library services in countries with different levels of development, with particular reference to the needs of developing countries - Paris, Unesco, 1973, 156 + 40 p. (COM/WS/301)

Organization of a documentation service

- Information units in small plants - New York, United Nations, 1973, 48 p. (prepared for UNIDO)
  setting up an information unit, in particular in developing countries; with bibliography
- Martyn, J. - Notes on the operation of specialized information centres - London, Aslib, 1970 (Occasional Paper 5)
- Selected readings on information for industry - Copenhagen, FID/II, c/o Dansk Teknisk Oplysningstjeneste, 1974, 60 p. (FID 518)
- Index to users studies - The Hague, FID, 1974, 103 p. (FID 515)

10. Training

Training schools

- World guide to library schools and training courses in documentation - Paris, Unesco/London, Clive Bingley, 1972, 245 p.
  306 schools in 60 countries
- A guide to the world's training facilities in documentation and information work - The Hague, FID, 1969, 2nd ed., 294 p. (FID 461)
  courses for training documentalists and users of information
- Euwe, M. - Survey of the courses in informatics at university level in various countries of the European Common Market - Amsterdam, Netherlands Research Centre for Informatics, 1972, 94 p.
  Belgium, Germany, France, Italy, Netherlands

Organization of courses

- Guidelines for the organization of training courses, workshops and seminars in scientific and technical information and documentation - Paris, Unesco/UNISIST, 1975, 88 p. (SC/75/WS/29)
  "Guidelines for evaluating training courses and seminars" will soon appear as a companion volume

Instructional guides

- Mikhailov, A.I. and Giljarevskij, R.S. - An introductory course on informatics/documentation - The Hague, FID, 1971, 204 p. (FID 481)
- Audiovisual materials in support of information science curricula - Washington, American Society for Information Science, (1971), 25 p.
  195 references
- Guide to films on information - Budapest, FID/DC Secretariat, c/o OMKDK, 1973, 2nd rev. ed.
  89 films and tape/slide presentations from 13 countries
- Lorraine Mathies, M. and Watson, Peter G. - Computer-based reference service - Chicago, American Library Association, 1973, 214 p.
  instructional guide to understand the construction and manipulation of computer-based information files

Annex A. ISO TECHNICAL COMMITTEES
in the information field

ISO/TC 6 Paper, board and pulps
secr.: France (AFNOR)
of marginal interest, e.g.
- SC 3 Dimensions

ISO/TC 37 Terminology (principles and coordination)
secr.: Austria (ON)
WG 1 - Principles of terminology
WG 2 - Layout of vocabularies
WG 3 - Computational aids in terminology and lexicography

ISO/TC 42 Photography
secr.: USA (ANSI)
of marginal interest

ISO/TC 46 Documentation
secr.: Germany (Deutsches Institut für Normung - DIN (formerly DNA), Burggrafenstrasse 4-7, 1 Berlin 30)
secretary: Mrs. J. Eggert
- WG 1 Numbering systems in documentation (secr.: formerly at BSI, now being offered to ANSI)
- WG 2 Representation and coding of country names (secr.: DIN)
- WG 5 Guidelines for the establishment of thesauri (secr.: DIN)
- WG 6 Bibliographical and similar tasks (secr.: SCC, Canada)
- WG 7 Presentation of publications (secr.: AFNOR, France)
- SC 1 Documentary reproduction (secr.: AFNOR)
  - WG 1 Microfiches
  - WG 2 Microcopying of technical drawings
  - WG 3 Microcopying newspapers
  - WG 4 Quality of microcopies
  - WG 5 Vocabulary
  - WG 6 Reading machines and other microcopying devices
- SC 2 Conversion of written languages (secr.: AFNOR)
- SC 3 Terminology of documentation (secr.: DIN)
- SC 4 Automation in documentation (secr.: SIS, Sweden)
  - WG 1 Character sets for documentation and bibliographic use
  - WG 2 Bibliographic content designators for machine processing
  - WG 3 Bibliographical filing arrangements
  - WG 4 Format structure for bibliographic information interchange in machine readable form

ISO/TC 68 Banking procedures
secr.: USA (ANSI)
of marginal interest, e.g.
- SC 1/WG 1 Documents used in banks for international information interchange

ISO/TC 95 Office machines
secr.: Italy (UNI)
of marginal interest, e.g.
- SC 4 Duplicating and document copying machines

ISO/TC 97 Computers and information processing
secr.: USA (ANSI)
- SC 1 Vocabulary
- SC 2 Character sets and coding
- SC 3 Character and mark recognition
- SC 5 Programming language
- SC 6 Data communications
- SC 7 Design and documentation of computer-based information systems
- SC 8 Numerical control of machines
- SC 9 Programming languages for numerical control
- SC 10 Magnetic discs
- SC 11 Computer magnetic tape
- SC 12 Instrumentation magnetic tape
- SC 13 Interconnection of equipment
  - WG 1 Process interfaces for computer systems
- SC 14 Representations of data elements
- SC 15 Description, file structure and labelling of data in interchange files

ISO/TC 130 Graphic technology
secr.: France (AFNOR)
of marginal interest

ISO/TC 145 Graphic symbols
secr.: Germany (DIN)
of marginal interest

ICO/TC 154 Documents and data elements in administration, commerce and industry
secr.: Sweden (SIS)
- SC 1 Terminology
- SC 2 Documents
  - WG 1 Sizes of documents and envelopes
  - WG 2 Basic rules for the layout and presentation of both the preprinted and other information
  - WG 3 Layout of trade documents
- SC 3 Data elements
- SC 4 Filing

Annex B. INDEX TO ISO STANDARDS
standards, recommendations and drafts

	chapter
ISO/TC 6 Paper	
- paper format: 216, 478, 479, 593 (s.a. ISO/TC 46)	1.4
ISO/TC 37 Terminology	
- vocabulary: 704, 860, 919, 1087, 1149, 1951	6.3
- language and country codes: 639 (s.a. ISO/TC 46)	3.42
ISO/TC 42 Photography	
- filmstrips: 686	8.3
ISO/TC 46 Documentation	
- paper format: ISA 7	1.4
- layout of documents: 8, 18, 30, 215, 999, 1086, 2145	3.1
- bibliographical references: 4, 77, 690, 832, 833, DIS 3388	3.2 a
- ditto, on tape: 2709	7.4
- transliteration: 9, 233, 259, 843, DIS 3602	3.2 b
- abstracts: 214	3.3
- thesauri: 2788	3.41
- country names: 3166	3.42
- book/serial numering: 2108, 3297	3.2 c
- photocopies: 169	8.1
- microcopies: 193, 218, 260, 371, 435, 446, 452, 689, 782, 1116, 2707, 2708, 3272	8.3
- directories: 2146	6.2
- statistics: 2789 (rules for reporting library statistics)	
ISO/TC 97 Computers and information processing	
- punched cards: 1679, 1681, 1682, 2021	7.2
- paper tape: 646, 840, 1056, 1057, 1058, 1059, 1113, 1154, 1729, 2022, 2195, 2539	7.3
- magnetic tape: 841, 961, 962, 963, 1001, 1004, 1028, 1073, 1155, 1177, 1745, 1831, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 2033, 2110, 2111, 2375, 2593, 2628, 2629, 2636, 2690, 2711, 2864, 2955, 2972, 3275	7.4
- programming languages: 1538, 1539, 1989	7.4
- vocabulary: 2382	7.4

Annex C. ANSI and BSI STANDARDS

AMERICAN STANDARDS

American National Standards Institute (ANSI),
Standards Committee Z39 on Library work, Documentation and related Publishing practices,
School of Library Science, University of North Carolina, Chapel Hill, N.C. 27514
"News about Z39", quarterly

Z39. 1-1967 Periodicals: format and arrangement
Z39. 2-1971 Bibliographic information interchange on magnetic tape
Z39. 4-1968 Basic criteria for indexes
Z39. 5-1969 Abbreviation of titles of periodicals
Z39. 6-1965 Trade catalogs
Z39. 7-1968 Library statistics
Z39. 8-1968 Compiling book publishing statistics
Z39. 9-1971 Identification number for serial publications
Z39.10-1971 Directories of libraries and information centers
Z39.11-1972 System for the romanization of Japanese
Z39.12-1972 System for the romanization of Arabic
Z39.13-1971 Advertising of books
Z39.14-1971 Writing abstracts
Z39.15-1971 Title leaves of a book
Z39.16-1972 Preparation of scientific papers for written or oral presentation
Z39.18-1974 Guidelines for format and production of scientific and technical reports
Z39.19-1974 Guidelines for thesaurus structure, construction and use
Z39.20-1974 Criteria for price indexes for library materials
Z39.21-1973 Book numbering
Z39.22-1974 Proof corrections
Z39.23-1974 Standard technical report number

BRITISH STANDARDS (selected list)

British Standards Institution (BSI),
Committee OC/20 Documentation,
2 Park Street, London W1A 2BS
Sales Department: 101 Pentonville Road, London N1 9ND
"BSI News", monthly

BS 1000 : -- Universal Decimal Classification (UDC). English Full Edition, 4th International Edition
BS 1000A:1961 Universal Decimal Classification (UDC). Abridged English Edition
BS 1000C:1963 Guide to the Universal Decimal Classification (UDC) = FID 345 by J. Mills (cf. Literature chapter 3)
BS 1153 :1975 Recommendations for the processing and storage of silver-gelatin-type microfilm

BS 1219 :1958 Recommendations for proof correction and copy preparation

BS 1219C:1958 Table of symbols for printers' and authors' proof corrections (extracted from BS 1219)

BS 1371 :1973 35 mm and 16 mm microfilms, spools and reels (agrees with ISO/R 1116)

BS 1568 : -- Magnetic tape recording equipment
Part 1:1970 Magnetic tape recording and reproducing systems, dimensions and characteristics
Part 2:1973 Cassette for commercial tape records and domestic use, dimensions and characteristics

BS 1629 :1950 Bibliographical references (cf. ISO/R 77)

BS 1749 :1969 Alphabetical arrangement and the filing order of numerals and symtols

BS 1896 :1972 Sizes of reprographic papers

BS 1917 :1968 Slides and film strips
(5 x 5 cm and 7 x 7 cm slides, and filmstrips)

BS 1928 :1965 Processed disc records and reproducing equipment

BS 2509 :1970 Presentation of serial publications, including periodicals (agrees with ISO/R 8 and ISO/R 215)

BS 2698 :1971 Containers and notes for filmstrips

BS 2979 :1958 Transliteration of Cyrillic and Greek characters

BS 3203 :1964 Glossary of paper, stationery and allied terms

BS 3527 :1962 Glossary of terms relating to automatic data processing

BS 3700 :1964 Recommendations for the preparation of indexes for books, periodicals and other publications

BS 3862 :1965 Recommendations for symbols for languages, geographical areas and authorities

BS 3880 : -- Paper tape for data processing
Part 1:1971 Unpunched paper tape (agrees with ISO/R 1154 and ISO 1729)
Part 2:1971 Dimensions and locations of punched holes in paper tape (agrees with ISO/R 1154)
Part 3:1971 Representation of codes on paper tape (agrees with ISO/R 1113)
Part 4:1972 General requirements for data interchange on punched paper tape

BS 4000 :1968 Sizes of papers and boards

BS 4148 : -- The abbreviation of titles of periodicals
Part 1:1970 Principles
to be supplemented by Part 2: Word-abbreviation list

BS 4187 : -- Microfiche
Part 1:1973 60-frame format (agrees with ISO 2707)
Part 2:1973 98-frame format (agrees with ISO 2707)

BS 4191 :1967 Essential characteristics of 35 mm microfilm reading apparatus (cf. ISO/R 452)

BS 4210 : -- 35 mm microcopying of engineering drawings and associated data
Part 1:1967 Recommended procedures
Part 2 Photographic requirements
Section 2.1:1970 Requirements for silver film
Part 3:1970 Aperture cards and copy cards

BS 4280 :1968 Transliteration of Arabic characters (agrees with ISO/R 233)

BS 4446 :1969 Presentation of conference proceedings
BS 4505 : -- Digital data transmission
Part 1:1969 Basic mode control procedures (cf. ISO/R 1745)
Part 2:1969 Character structure for start/stop and synchronous transmission (cf. ISO/R 1177)
Part 3:1969 The use of longitudinal parity to detect errors in information messages
Part 4:1971 Code independent information transfer
BS 4605 :1970 Presentation of library directories (agrees with ISO/R 2146)
BS 4719 :1971 Title leaves of a book (agrees with ISO/R 1086)
BS 4732 :1971 Magnetic tape labelling and file structure for data interchange (agrees with ISO/R 1001)
BS 4748 :1971 Bibliographic information interchange format for magnetic tape
BS 4755 :1971 Presentation of translations (agrees with ISO/DIS 2384)
BS 4762 :1971 Book numbering (agrees with ISO/R 2108)
BS 4811 :1972 Presentation of research and development reports
BS 4812 :1972 The romanization of Japanese
BS 4821 :1972 Recommendations for the presentation of theses

Annex D. OUTLINE OF THE UDC

Main tables

0	GENERALITIES
002	Documentation
005	Methodology. Organization study
006	Standardization
007	Information theory. Cybernetics
01	Bibliography
02	Library science
025.4	Indexing languages (classification, thesauri)
06	Organizations. Associations
069	Museums
1	PHILOSOPHY. PSYCHOLOGY
11	Metaphysics
14	Philosophical systems
159.9	Psychology
16	Logic
17	Ethics
2	RELIGION. THEOLOGY
21	Natural theology
22	The Bible
23/25	Christian theology
26/28	The Christian Church
294	Hinduism. Buddhism
296	Jewish religion
297	Islam. Mohammedanism
299	Other religions
3	SOCIAL SCIENCES
30	Sociology
31	Statistics
32	Political science. Politics
33	Economics
330	Political economy. Economic theories
331	Labour
332	Land and property
334	Forms of organizations and agreements for economic activity. Cooperatives
336	Finance
338	Economic situation. Production
339	Trade. Customs. World economy
34	Law and legislation
341	International law
342	Constitutional, public law
343	Criminal, penal law
347	Private, civil and commercial law

35	Public administration. Government
351	Public services
352	Local government. Municipal administration
353	Regional (provincial, county) administration
354	Central government. Ministries
355/359	Military science. Armed forces
36	Social relief. Welfare. Insurance
361	Social relief
362	Social welfare
368	Insurance
37	Education
371	Organization
372	Programmes
373	School education
374	Out-of-school education
376	Special education (handicapped, etc.)
377	Vocational training
378	Higher education, universities
379.8	Leisure
39	Ethnography. Folklore
4	temporarily vacant (planned for "Environment" etc.)
5	NATURAL SCIENCES
502	Nature and wild life (s.a. 574)
51	Mathematics
52	Astronomy, Geodesy
521/524	Astronomy
528	Geodesy. Surveying
53	Physics
531	General mechanics
532	Fluid mechanics. Hydromechanics
533	Gas mechanics. Aeromechanics. Plasma physics
534	Vibrations. Acoustics. Sound (s.a. 681.8)
535	Optics. Light
536	Heat. Thermodynamics
537	Electricity. Magnetism. Electromagnetism
539.1	Nuclear physics (s.a. 621.039)
539.2	Solid state physics
54	Chemistry
541	Theoretical and physical chemistry
542	Experimental chemistry
543	Analytical chemistry
546	Inorganic chemistry
547	Organic chemistry
548	Crystallography
549	Mineralogy
55	Geology. Meteorology
550.3	Geophysics. Seismology
551.2	Geodynamics
551.4	Geomorphology
551.46	Oceanography (s.a. 556)
551.5	Meteorology
552	Petrology
553	Economic geology. Minerals. Ores
556	Hydrosphere. Water. General hydrology

56 Palaeontology
57 Biological sciences
57.08 Biological technique
572 Anthropology. Ethnology
574 Ecology. Biogeography (s.a. 502)
575 Genetics. Cytogenetics. Evolution
576 Cytology. Microbiology
577 Biochemistry. Molecular biology. Biophysics
58 Botany
59 Zoology

6 APPLIED SCIENCES

608 Innovation. Inventions. Patents

61 Medical sciences
611 Anatomy
612 Physiology
613 Personal health. Occupational hygiene
614 Public health and safety. Accident prevention
615 Pharmacy. Pharmacology
616 Pathology
617 Surgery
617.7 Ophthalmology
618 Gynaecology. Obstetrics

62 Engineering and technology
620.1 Materials testing. Metallography
621 Mechanical and electrical engineering
621.039 Nuclear technology (s.a. 539.1)
621.22 Water power. Hydraulic energy
621.3 Electrical engineering
621.39 Telecommunication engineering
621.4 Internal combustion engines
621.5 Pneumatic energy. Refrigeration
621.6 Fluid storage and distribution. Pipes. Pumps
621.73/.77 Plastic working. Forge, foundry, rolling, etc.
621.78/.79 Heat treatment. Welding and other finishing processes
621.798 Packing
621.81/.85 Power transmission. Coupling. Drives
621.86/.88 Materials handling. Fixing
621.9 Tool and machine tool working
622 Mining
623 Military and naval engineering (s.a. 629)
624 Civil engineering (s.a. 69 and 72)
625 Railway and highway engineering (s.a. 629.4)
626/627 Hydraulic engineering and construction
628 Public health engineering
629 Transport engineering
629.11 Land vehicles
629.12 Ships
629.4 Railway vehicles
629.7 Air/Space vehicles

63	Agriculture. Forestry. Fisheries
631	Agronomy
631.3	Agricultural machinery
631.4	Soil science
631.5	Agricultural operations. Cultivation methods
632	Plant diseases and protection
633	Crop cultivation. Crops
634.0	Forestry (likely to be transferred to 630)
634.1/635	Fruit cultivation. Viticulture. Horticulture
636/638	Animal husbandry and produce
639.1	Hunting
639.2/.9	Fisheries
64	Household science. Home economics
641/642	Catering
643/645	Furnishing
648	Laundering
65	Management and organization (of business, industry and communications)
651	Office management
654	Long distance communication services
655	Graphic industry. Printing. Publishing (s.a. 681.6)
656	Transport and postal services
657	Accountancy and bookkeeping
658	Business and industrial management
659	Publicity. Information. Public relations
66	Chemical industries
66.0	Chemical engineering
661	Chemicals
662	Explosives. Fuels
663	Technical microbiology. Beverages
664	Food technology
665.1/.3	Natural oils, fats and waxes
665.6/.7	Petroleum technology
666.1/.2	Glass industry
666.3/.7	Ceramic industry
666.9	Gypsum, lime and cement industries
667	Colour industries
669	Metallurgy
669.1	Ferrous metals. Iron and steel
669.2/.8	Non-ferrous metals
67/68	Various industries and crafts
674	Timber and woodwork industry
675	Leather industry
676	Pulp and paper industry
677	Textile industry
678	Rubber and plastics industries
681	Precision mechanics. Instrument making
681.1	Horology
681.3	Data processing equipment
681.5	Automatic control systems

681.6	Reproducing and printing machines (s.a. 655)
681.7	Optical instruments
681.8	Technical acoustics (s.a. 534)
684	Furniture industry
687	Clothing industry
69	Building industry (s.a. 624 and 72)
691	Building materials
693	Masonry. Concreting. Steelwork
694	Timber construction
696/697	Installations and services
699.8	Protection of and in buildings
7	ARTS. ARCHITECTURE. SPORT
71	Physical planning
72	Architecture (s.a. 624 and 69)
73	Plastic arts. Sculpture
74/76	Graphic arts. Drawing, painting, engraving
77	Photography
778.1	Reprography (photocopying, microcopying)
778.5	Cinematography
78	Music
791	Public entertainment. Cinema
792	Theatre
793/794	Social entertainments and games
796/799	Sport
8	LANGUAGES. LINGUISTICS. LITERATURE
80	Linguistics. Philology
802/809	Individual languages
82	Literature
820/899	Literature of individual languages
9	GEOGRAPHY. BIOGRAPHY. HISTORY
902/904	Archaeology
91	Geography
929	Biography
93/99	History

Auxiliary tables

language

= 20	English
= 30	German
= 40	French
= 50	Italian
= 60	Spanish
= 690	Portuguese
= 82	Russian
= 927	Arabic
= 951	Chinese
= 956	Japanese
= 96	African languages

form

(02) Books
(03) Dictionaries. Encyclopedias
(04) Brochures. Reports
(05) Periodicals and serial publications
(09) Polygraphies. Varia

place and spatial features

(100) International
(15) Space
(21) Land areas. Zones, regions
(23) Mountains
(26) Oceans. Seas
(28) Rivers
(3) The ancient world
(4) Europe
(5) Asia
(6) Africa
(7) North and Central America
(8) South America
(91/96) Australasian and Oceanian territories
(98/99) Polar regions

race and nationality

(=081) Primitive races
(=088) Half-casts
(=1-81) Indigenous. Natives

date and time

"32" Seasons
"5" Periodicity

point of view

.000.2 Religious
.000.5 Scientific
.001 Theoretical: programmes, plans, research
.002 Practical: production, materials, etc.
.003 Economic and financial
.004 Operation, service and use
.006 Site, accommodation
.007 Personnel, manpower

personal characteristics

-053.2 Children
-055.1 Men, male
-055.2 Women, female
-057 Occupation
-058 Social and civil status